Search history


```
=> d his full

     (FILE 'HOME' ENTERED AT 11:56:54 ON 14 OCT 2005)

     FILE 'CAPLUS' ENTERED AT 11:57:22 ON 14 OCT 2005
                E US2003-729854/APPS
L1             1 SEA ABB=ON  PLU=ON  (US2003-729854/AP OR US2003-729854/PRN)
                D IALL L1

     FILE 'STNGUIDE' ENTERED AT 11:59:09 ON 14 OCT 2005

     FILE 'CAPLUS' ENTERED AT 11:59:41 ON 14 OCT 2005
                E NANOTUBES+ALL/CT
L2         20680 SEA ABB=ON  PLU=ON  NANOTUBES+NT/CT
                E E8+ALL

     FILE 'ZCAPLUS' ENTERED AT 12:07:56 ON 14 OCT 2005
                E MICROELECTRODES+ALL/CT
                E GLUCOSE SENSORS+NT/CT
                E GLUCOSE SENSORS+ALL/CT
                E E15+ALL
                E E7+ALL

     FILE 'CAPLUS' ENTERED AT 12:18:52 ON 14 OCT 2005

     FILE 'HCAPLUS' ENTERED AT 12:19:57 ON 14 OCT 2005
L3         20680 SEA ABB=ON  PLU=ON  NANOTUBES+NT/CT
L4          2884 SEA ABB=ON  PLU=ON  MICROELECTRODES+NT/CT
L5          4758 SEA ABB=ON  PLU=ON  ENZYME ELECTRODES+NT/CT
L6          2046 SEA ABB=ON  PLU=ON  GLUCOSE SENSORS+OLD/CT
L7          9463 SEA ABB=ON  PLU=ON  GLUCOSE OXIDASE/CT
L8            60 SEA ABB=ON  PLU=ON  L3 AND L4
L9            57 SEA ABB=ON  PLU=ON  L3 AND L5
L10           22 SEA ABB=ON  PLU=ON  L3 AND L6
L11           60 SEA ABB=ON  PLU=ON  L3 AND L7
L12          139 SEA ABB=ON  PLU=ON  (L8 OR L9 OR L10 OR L11)
L13       258565 SEA ABB=ON  PLU=ON  GLUCOS?/OBI
L14         3349 SEA ABB=ON  PLU=ON  OXIDATION/OBI (2A) GLUCOSE/OBI
L15            0 SEA ABB=ON  PLU=ON  L8 AND L14
L16            4 SEA ABB=ON  PLU=ON  L13 AND L8
                D SCA
L17           22 SEA ABB=ON  PLU=ON  L3 AND L6
                D SCA

     FILE 'STNGUIDE' ENTERED AT 12:32:19 ON 14 OCT 2005

     FILE 'HCAPLUS' ENTERED AT 12:35:32 ON 14 OCT 2005
L18            3 SEA ABB=ON  PLU=ON  L8 AND L7
L19            0 SEA ABB=ON  PLU=ON  L18 NOT L16
L20           20 SEA ABB=ON  PLU=ON  L17 NOT L16
                D SCA

     FILE 'STNGUIDE' ENTERED AT 12:38:22 ON 14 OCT 2005

     FILE 'HCAPLUS' ENTERED AT 12:41:23 ON 14 OCT 2005
L21           57 SEA ABB=ON  PLU=ON  L3 AND L5
L22           37 SEA ABB=ON  PLU=ON  L3 AND L5 AND L13
L23           14 SEA ABB=ON  PLU=ON  L22 NOT (L16 OR L17)

     FILE 'STNGUIDE' ENTERED AT 12:45:04 ON 14 OCT 2005
```

```
     FILE 'HCAPLUS' ENTERED AT 12:47:22 ON 14 OCT 2005
L24           22 SEA ABB=ON  PLU=ON  L3 AND L6 AND L5
L25           22 SEA ABB=ON  PLU=ON  L3 AND L6 AND L5 AND L13
L26           19 SEA ABB=ON  PLU=ON  L3 AND L6 AND L5 AND L7
L27            2 SEA ABB=ON  PLU=ON  L3 AND L6 AND L5 AND L7 AND L4
                 D SCA
L28            3 SEA ABB=ON  PLU=ON  L25 NOT L26
                 D SCA
                 D SCA L26

     FILE 'STNGUIDE' ENTERED AT 12:53:04 ON 14 OCT 2005

     FILE 'MEDLINE' ENTERED AT 13:09:48 ON 14 OCT 2005
L29          391 SEA ABB=ON  PLU=ON  NANOTUBES, CARBON/CT
L30         9350 SEA ABB=ON  PLU=ON  MICROELECTRODES/CT
L31          507 SEA ABB=ON  PLU=ON  ION-SELECTIVE ELECTRODES/CT
L32         6401 SEA ABB=ON  PLU=ON  BIOSENSING TECHNIQUES/CT
L33         2418 SEA ABB=ON  PLU=ON  GLUCOSE OXIDASE/CT
L34        92126 SEA ABB=ON  PLU=ON  GLUCOSE/CT
L35       317012 SEA ABB=ON  PLU=ON  GLUCOS?
L36           10 SEA ABB=ON  PLU=ON  L29 AND L30
L37            1 SEA ABB=ON  PLU=ON  L29 AND L31
L38           11 SEA ABB=ON  PLU=ON  L36 OR L37
L39            1 SEA ABB=ON  PLU=ON  L38 AND L35
                 D TRIAL
                 D TRIAL L38 1-11

     FILE 'STNGUIDE' ENTERED AT 13:14:13 ON 14 OCT 2005

     FILE 'MEDLINE' ENTERED AT 13:17:53 ON 14 OCT 2005
L40           40 SEA ABB=ON  PLU=ON  L29 AND L32
L41            9 SEA ABB=ON  PLU=ON  L40 AND L35
                 D TRIAL 1-9

     FILE 'STNGUIDE' ENTERED AT 13:18:37 ON 14 OCT 2005
L*** DEL       0 S ELECTROCHEMISTRY/CT

     FILE 'MEDLINE' ENTERED AT 13:21:02 ON 14 OCT 2005
L42        17523 SEA ABB=ON  PLU=ON  ELECTROCHEMISTRY/CT
L43            6 SEA ABB=ON  PLU=ON  L41 AND L42
                 D TRIAL 1-6
L44            6 SEA ABB=ON  PLU=ON  L29 AND L42 AND L33
L45            1 SEA ABB=ON  PLU=ON  L43 NOT L44
L46            1 SEA ABB=ON  PLU=ON  L44 NOT L43
                 D TRIAL
L47            8 SEA ABB=ON  PLU=ON  L29 AND L33
                 D TRIAL 1-8
L48            2 SEA ABB=ON  PLU=ON  L47 NOT (L39 OR L43 OR L44)
                 D TRIAL 1-2

     FILE 'HCAPLUS' ENTERED AT 13:29:18 ON 14 OCT 2005
L49           21 SEA ABB=ON  PLU=ON  L16 OR L18 OR L27 OR L26

     FILE 'MEDLINE' ENTERED AT 13:29:49 ON 14 OCT 2005
L50            8 SEA ABB=ON  PLU=ON  L39 OR L43 OR L44

     FILE 'HCAPLUS, MEDLINE' ENTERED AT 13:30:15 ON 14 OCT 2005
L51           28 DUP REM L49 L50 (1 DUPLICATE REMOVED)
                    ANSWERS '1-21' FROM FILE HCAPLUS
```

ANSWERS '22-28' FROM FILE MEDLINE

FILE 'STNGUIDE' ENTERED AT 13:30:34 ON 14 OCT 2005

FILE 'EMBASE' ENTERED AT 13:30:52 ON 14 OCT 2005

FILE 'STNGUIDE' ENTERED AT 13:30:56 ON 14 OCT 2005

FILE 'EMBASE' ENTERED AT 13:31:02 ON 14 OCT 2005

```
              E NANOTUBE/CT
              E NANOTUBE+ALL/CT
              E MICROELECTRODE+ALL/CT
              E ELECTRODE+ALL/CT
              E BIOSENSING TECHNIQUE/CT
              E E4+ALL
              E BIOSENSOR+ALL/CT
              E E5+ALL
              E GLUCOSE OXIDASE/CT
              E E3+ALL
              E GLUCOSE+ALL/CT
L52         319 SEA ABB=ON  PLU=ON  NANOTUBE/CT
L53        4131 SEA ABB=ON  PLU=ON  MICROELECTRODE/CT
L*** DEL      0 S ION-SELECTIVE ELECTRODE/CT
              E ION-SELECTIVE ELECTRODE/CT
              E E4+ALL
L54        1402 SEA ABB=ON  PLU=ON  ION SELECTIVE ELECTRODE/CT
L55         506 SEA ABB=ON  PLU=ON  ENZYME ELECTRODE/CT
L56         324 SEA ABB=ON  PLU=ON  AMPEROMETRIC BIOSENSOR/CT
L57         162 SEA ABB=ON  PLU=ON  ENZYMIC BIOSENSOR/CT
L58        2025 SEA ABB=ON  PLU=ON  GLUCOSE OXIDASE/CT
L59       99852 SEA ABB=ON  PLU=ON  GLUCOSE/CT
L60      259838 SEA ABB=ON  PLU=ON  GLUCOS?
L61           3 SEA ABB=ON  PLU=ON  L52 AND L53
              D TRIAL 1-3
L62           0 SEA ABB=ON  PLU=ON  L52 AND L54
L63           0 SEA ABB=ON  PLU=ON  L52 AND L55
L64           3 SEA ABB=ON  PLU=ON  L52 AND L56
              D TRIAL 1-3
L65           2 SEA ABB=ON  PLU=ON  L52 AND L56 AND L60
              D TRIAL 1-2
L66           1 SEA ABB=ON  PLU=ON  L65 AND SCANNING
L67           0 SEA ABB=ON  PLU=ON  L52 AND L57
L68           2 SEA ABB=ON  PLU=ON  L52 AND L58
              D TRIAL 1-2
              D TRIAL L66
L69       56494 SEA ABB=ON  PLU=ON  ELECTRODE
L70          36 SEA ABB=ON  PLU=ON  L52 AND L69
L71           3 SEA ABB=ON  PLU=ON  L70 AND L60
              D TRIAL 1-3
```

FILE 'BIOSIS' ENTERED AT 13:48:49 ON 14 OCT 2005

INDEX '1MOBILITY, 2MOBILITY, ABI-INFORM, ADISCTI, AEROSPACE, AGRICOLA, ALUMINIUM, ANABSTR, ANTE, APOLLIT, AQUALINE, AQUASCI, AQUIRE, BABS, BIBLIODATA, BIOBUSINESS, BIOCOMMERCE, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, BLLDB, CABA, CANCERLIT, ...' ENTERED AT 13:49:25 ON 14 OCT 2005

```
          SEA NANOTUBE
         ---------
         7   FILE 1MOBILITY
```

325	FILE ABI-INFORM
1254	FILE AEROSPACE
8	FILE AGRICOLA
38	FILE ALUMINIUM
245	FILE ANABSTR
119	FILE ANTE
558	FILE APOLLIT
4	FILE AQUALINE
1	FILE AQUASCI
1047	FILE BABS
5	FILE BIBLIODATA
3	FILE BIOBUSINESS
1	FILE BIOCOMMERCE
75	FILE BIOENG
411	FILE BIOSIS
134	FILE BIOTECHABS
134	FILE BIOTECHDS
65	FILE BIOTECHNO
22	FILE CABA
5	FILE CANCERLIT
24421	FILE CAPLUS
104	FILE CASREACT
267	FILE CBNB
652	FILE CEABA-VTB
192	FILE CEN
260	FILE CERAB
3	FILE CHEMINFORMRX
139	FILE CIN
28	FILE CIVILENG
11052	FILE COMPENDEX
65	FILE COMPUAB
2	FILE COMPUSCIENCE
282	FILE CONFSCI
18	FILE COPPERLIT
20	FILE CORROSION
1	FILE CROPU
18	FILE CSNB
7	FILE DDFU
700	FILE DGENE
439	FILE DISSABS
4	FILE DKF
834	FILE DPCI
7	FILE DRUGU
536	FILE ELCOM
1487	FILE EMA
57	FILE EMBAL
1140	FILE EMBASE
558	FILE ENCOMPLIT
819	FILE ENCOMPPAT
1345	FILE ENERGY
248	FILE ENTEC
13	FILE ENVIROENG
1107	FILE EPFULL
857	FILE ESBIOBASE
61	FILE FRANCEPAT
121	FILE FRFULL
10	FILE FROSTI
8	FILE FSTA
59	FILE GBFULL
12	FILE GENBANK

```
      11   FILE GEOREF
       4   FILE HEALSAFE
       7   FILE ICONDA
    2698   FILE IFIPAT
     864   FILE INIS
    3583   FILE INPADOC
   12415   FILE INSPEC
       2   FILE INSPHYS
      74   FILE INVESTEXT
      90   FILE IPA
       1   FILE ITRD
    1188   FILE JAPIO
    3751   FILE JICST-EPLUS
     243   FILE KOREAPAT
       4   FILE KOSMET
      52   FILE LIFESCI
       3   FILE LISA
     209   FILE MATBUS
      28   FILE MATH
     230   FILE MECHENG
    2296   FILE MEDLINE
     334   FILE METADEX
     884   FILE NLDB
     367   FILE NTIS
       1   FILE OCEAN
      63   FILE PAPERCHEM2
   10138   FILE PASCAL
       6   FILE PATDPA
      64   FILE PATDPAFULL
    2241   FILE PCTFULL
       2   FILE PHARMAML
       4   FILE PHIC
      17   FILE PHIN
     264   FILE PIRA
       6   FILE POLLUAB
    1541   FILE PROMT
     767   FILE RAPRA
       4   FILE RUSSIAPAT
   19333   FILE SCISEARCH
     900   FILE SOLIDSTATE
    2624   FILE TEMA
      65   FILE TEXTILETECH
     596   FILE TOXCENTER
      42   FILE TRIBO
       5   FILE TULSA
       2   FILE TULSA2
    4603   FILE USPATFULL
     871   FILE USPAT2
       4   FILE WATER
    3471   FILE WPIDS
     165   FILE WPIFV
    3471   FILE WPINDEX
      81   FILE WSCA
     212   FILE WTEXTILES
L72          QUE ABB=ON  PLU=ON  NANOTUBE
             ---------
             SEA NANOTUBE AND GLUCOSE
             ---------
             4   FILE ABI-INFORM
             1   FILE AEROSPACE
```

```
  27   FILE ANABSTR
   4   FILE APOLLIT
   2   FILE BABS
   6   FILE BIOENG
  22   FILE BIOSIS
  19   FILE BIOTECHABS
  19   FILE BIOTECHDS
   6   FILE BIOTECHNO
   5   FILE CABA
 117   FILE CAPLUS
   3   FILE CASREACT
   2   FILE CBNB
  11   FILE CEABA-VTB
   7   FILE CEN
   1   FILE CERAB
  54   FILE COMPENDEX
   2   FILE COMPUAB
   1   FILE CONFSCI
   1   FILE COPPERLIT
   5   FILE DISSABS
   1   FILE DPCI
   1   FILE DRUGU
   2   FILE ELCOM
   4   FILE EMA
   2   FILE EMBAL
  29   FILE EMBASE
   1   FILE ENCOMPPAT
   5   FILE ENERGY
  29   FILE EPFULL
  18   FILE ESBIOBASE
   8   FILE FRFULL
   5   FILE FSTA
  29   FILE IFIPAT
   4   FILE INPADOC
  21   FILE INSPEC
  10   FILE JICST-EPLUS
   1   FILE KOREAPAT
  37   FILE MEDLINE
   6   FILE NLDB
   1   FILE PAPERCHEM2
  37   FILE PASCAL
   1   FILE PATDPAFULL
 184   FILE PCTFULL
   1   FILE PIRA
   8   FILE PROMT
   5   FILE RAPRA
 113   FILE SCISEARCH
   2   FILE SOLIDSTATE
  14   FILE TEMA
  11   FILE TOXCENTER
 296   FILE USPATFULL
  19   FILE USPAT2
  24   FILE WPIDS
   1   FILE WPIFV
  24   FILE WPINDEX
   1   FILE WTEXTILES
L73       QUE ABB=ON  PLU=ON  NANOTUBE AND GLUCOSE
          ---------

FILE 'PASCAL, INSPEC, BIOSIS, BIOTECHDS, ANABSTR, SCISEARCH' ENTERED AT
```

```
     13:57:34 ON 14 OCT 2005
L74         43086 SEA ABB=ON  PLU=ON  NANOTUB?
L75        731415 SEA ABB=ON  PLU=ON  GLUCOS?
L76         17712 SEA ABB=ON  PLU=ON  GLUCOSE OXIDASE
L77        656483 SEA ABB=ON  PLU=ON  MICROELECTROD? OR ELECTROD?
L78         52472 SEA ABB=ON  PLU=ON  BIOSENS?
L79           165 SEA ABB=ON  PLU=ON  L74 AND L76
L80           132 SEA ABB=ON  PLU=ON  L79 AND L77
L81           107 SEA ABB=ON  PLU=ON  L80 AND L78
L82        809921 SEA ABB=ON  PLU=ON  HYDROGEN
L83       1503024 SEA ABB=ON  PLU=ON  GAS
L84            40 SEA ABB=ON  PLU=ON  L81 AND L82
L85             1 SEA ABB=ON  PLU=ON  L84 AND L83
                  D TRIAL
L86         12390 SEA ABB=ON  PLU=ON  SENS? (2A) GLUCOS?
L87            75 SEA ABB=ON  PLU=ON  L74 AND L86
L88            60 SEA ABB=ON  PLU=ON  L87 AND L77
L89            25 SEA ABB=ON  PLU=ON  L84 AND L86
L90            25 SEA ABB=ON  PLU=ON  L89 AND L78
                  D KWIC L90 1-5
L91          8929 SEA ABB=ON  PLU=ON  HYDROGEN GAS
L92           197 SEA ABB=ON  PLU=ON  L74 AND L91
L93             1 SEA ABB=ON  PLU=ON  L92 AND L76
L94             1 SEA ABB=ON  PLU=ON  L92 AND L75
L95          4050 SEA ABB=ON  PLU=ON  L74 AND L77
L96           267 SEA ABB=ON  PLU=ON  L74 AND L75
L97           183 SEA ABB=ON  PLU=ON  L96 AND L77
L98             2 SEA ABB=ON  PLU=ON  L80 AND L83
                  D KWIC 1-2
L99            43 SEA ABB=ON  PLU=ON  L80 AND L82
L100           25 SEA ABB=ON  PLU=ON  L99 AND L86

     FILE 'STNGUIDE' ENTERED AT 14:15:19 ON 14 OCT 2005

     FILE 'HCAPLUS, PASCAL, INSPEC, BIOSIS, BIOTECHDS, ANABSTR, SCISEARCH'
     ENTERED AT 14:15:31 ON 14 OCT 2005
L101           25 DUP REM L26 L100 (19 DUPLICATES REMOVED)
                        ANSWERS '1-19' FROM FILE HCAPLUS
                        ANSWERS '20-22' FROM FILE PASCAL
                        ANSWERS '23-24' FROM FILE BIOSIS
                        ANSWER '25' FROM FILE SCISEARCH

     FILE 'HCAPLUS' ENTERED AT 14:17:14 ON 14 OCT 2005
                  E LEE JU/AU
                  E LEE JUN/AU
                  E LEE JUNG/AU
L102           65 SEA ABB=ON  PLU=ON  LEE JUNG HOON/AU
                  E CHUNG JA/AU
                  E CHUNG J/AU
                  E CHUNG J?/AU
L103         2991 SEA ABB=ON  PLU=ON  CHUNG J?/AU
                  E LEE KY/AU
                  E LEE KYO/AU
L104         4940 SEA ABB=ON  PLU=ON  LEE KY?/AU
L105            0 SEA ABB=ON  PLU=ON  L102 AND L103 AND L104
L106           16 S LEE J?
L106        43005 SEA ABB=ON  PLU=ON  LEE J?/AU
L107           12 SEA ABB=ON  PLU=ON  L103 AND L104 AND L106

     FILE 'MEDLINE' ENTERED AT 14:22:21 ON 14 OCT 2005
```

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L108       15800 SEA ABB=ON  PLU=ON  LEE J?/AU
L109        1822 SEA ABB=ON  PLU=ON  CHUNG J?/AU
L110        1054 SEA ABB=ON  PLU=ON  LEE KY?/AU
L111           3 SEA ABB=ON  PLU=ON  L108 AND L109 AND L110

     FILE 'EMBASE' ENTERED AT 14:23:21 ON 14 OCT 2005
L112           1 SEA ABB=ON  PLU=ON  LEE KY?/AU
L113        1554 SEA ABB=ON  PLU=ON  CHUNG J?/AU
L114       13605 SEA ABB=ON  PLU=ON  LEE J?/AU
L115         143 SEA ABB=ON  PLU=ON  L113 AND L114
L116           0 SEA ABB=ON  PLU=ON  L113 AND L114 AND L112

     FILE 'HCAPLUS' ENTERED AT 14:25:11 ON 14 OCT 2005
                D SCA TI L107

     FILE 'STNGUIDE' ENTERED AT 14:27:50 ON 14 OCT 2005

     FILE 'PASCAL, INSPEC, BIOSIS, BIOTECHDS, ANABSTR, SCISEARCH' ENTERED AT
     14:29:03 ON 14 OCT 2005
L117        8901 SEA ABB=ON  PLU=ON  CHUNG J?/AU
L118       89770 SEA ABB=ON  PLU=ON  LEE J?/AU
L119        2990 SEA ABB=ON  PLU=ON  LEE KY?/AU
L120           3 SEA ABB=ON  PLU=ON  L117 AND L118 AND L119

     FILE 'STNGUIDE' ENTERED AT 14:30:11 ON 14 OCT 2005

     FILE 'HCAPLUS' ENTERED AT 14:34:26 ON 14 OCT 2005
                D QUE L107

     FILE 'MEDLINE' ENTERED AT 14:34:28 ON 14 OCT 2005
                D QUE L111

     FILE 'EMBASE' ENTERED AT 14:34:30 ON 14 OCT 2005
                D QUE L116

     FILE 'PASCAL, INSPEC, BIOSIS, BIOTECHDS, ANABSTR, SCISEARCH' ENTERED AT
     14:34:31 ON 14 OCT 2005
                D QUE L120

     FILE 'STNGUIDE' ENTERED AT 14:34:50 ON 14 OCT 2005

     FILE 'HCAPLUS, MEDLINE, BIOSIS' ENTERED AT 14:36:35 ON 14 OCT 2005
L121          15 DUP REM L107 L111 L116 L120 (3 DUPLICATES REMOVED)
                     ANSWERS '1-12' FROM FILE HCAPLUS
                     ANSWERS '13-14' FROM FILE MEDLINE
                     ANSWER '15' FROM FILE BIOSIS
                D IBIB ABS HITIND L121 1-12
                D IALL L121 13-15

     FILE 'STNGUIDE' ENTERED AT 14:38:07 ON 14 OCT 2005

     FILE 'HCAPLUS' ENTERED AT 14:43:08 ON 14 OCT 2005
                D QUE L16
                D QUE L18
                D QUE L26
                D QUE L27
L122          19 SEA ABB=ON  PLU=ON  (L16 OR L18 OR L26 OR L27) NOT L107

     FILE 'MEDLINE' ENTERED AT 14:43:15 ON 14 OCT 2005
                D QUE L39
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```
              D QUE L43
              D QUE L44
L123          8 SEA ABB=ON  PLU=ON  (L39 OR L43 OR L44) NOT L111

     FILE 'EMBASE' ENTERED AT 14:43:18 ON 14 OCT 2005
              D QUE L66
L124          1 SEA ABB=ON  PLU=ON  L66 NOT L116

     FILE 'PASCAL, INSPEC, BIOSIS, BIOTECHDS, ANABSTR, SCISEARCH' ENTERED AT
     14:43:20 ON 14 OCT 2005
              D QUE L94
              D QUE L98
              D QUE L100
L125         26 SEA ABB=ON  PLU=ON  (L94 OR L98 OR L100)

     FILE 'STNGUIDE' ENTERED AT 14:45:19 ON 14 OCT 2005

     FILE 'HCAPLUS, MEDLINE, EMBASE, PASCAL, INSPEC, BIOSIS, BIOTECHDS,
     ANABSTR, SCISEARCH' ENTERED AT 14:46:20 ON 14 OCT 2005
L126         31 DUP REM L122 L123 L124 L125 (23 DUPLICATES REMOVED)
                    ANSWERS '1-19' FROM FILE HCAPLUS
                    ANSWERS '20-26' FROM FILE MEDLINE
                    ANSWER '27' FROM FILE EMBASE
                    ANSWER '28' FROM FILE PASCAL
                    ANSWER '29' FROM FILE BIOTECHDS
                    ANSWERS '30-31' FROM FILE SCISEARCH
              D IBIB ABS HITIND L126 1-19
              D IALL L126 20-31


     FILE HOME

     FILE CAPLUS

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     FILE STNGUIDE
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     LAST RELOADED: Oct  7, 2005 (20051007/UP).

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FILE HCAPLUS

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FILE LAST UPDATED: 13 Oct 2005 (20051013/ED)

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FILE MEDLINE
FILE LAST UPDATED: 13 OCT 2005 (20051013/UP). FILE COVERS 1950 TO DATE.

On December 19, 2004, the 2005 MeSH terms were loaded.

The MEDLINE reload for 2005 is now available. For details enter HELP RLOAD at an arrow promt (=>). See also:

http://www.nlm.nih.gov/mesh/
http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

OLDMEDLINE now back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2005 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE EMBASE
FILE COVERS 1974 TO 13 Oct 2005 (20051013/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE BIOSIS
FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 12 October 2005 (20051012/ED)

FILE RELOADED: 19 October 2003.

FILE STNINDEX

FILE PASCAL
FILE LAST UPDATED: 10 OCT 2005 <20051010/UP>
FILE COVERS 1977 TO DATE.

>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION IS AVAILABLE
IN THE BASIC INDEX (/BI) FIELD <<<

FILE INSPEC
FILE LAST UPDATED: 10 OCT 2005 <20051010/UP>
FILE COVERS 1969 TO DATE.

<<< SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN
THE BASIC INDEX >>>

FILE BIOTECHDS
FILE LAST UPDATED: 12 OCT 2005 <20051012/UP>

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FILE ANABSTR
FILE LAST UPDATED: 11 OCT 2005 <20051011/UP>
FILE COVERS 1980 TO DATE.

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THE BASIC INDEX (/BI) AND CHEMICAL NAME (/CN) FIELDS <<<

FILE SCISEARCH

FILE COVERS 1974 TO 13 Oct 2005 (20051013/ED)

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=>

```
=> file hcaplus
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FILE COVERS 1907 - 14 Oct 2005  VOL 143 ISS 17
FILE LAST UPDATED: 13 Oct 2005  (20051013/ED)

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'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d que L107
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AUTHOR Search

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L103       2991 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CHUNG J?/AU
L104       4940 SEA FILE=HCAPLUS ABB=ON  PLU=ON  LEE KY?/AU
L106      43005 SEA FILE=HCAPLUS ABB=ON  PLU=ON  LEE J?/AU
L107         12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L103 AND L104 AND L106


=> file medline

FILE 'MEDLINE' ENTERED AT 14:34:28 ON 14 OCT 2005

 FILE LAST UPDATED: 13 OCT 2005 (20051013/UP).  FILE COVERS 1950 TO DATE.

 On December 19, 2004, the 2005 MeSH terms were loaded.

 The MEDLINE reload for 2005 is now available.  For details enter HELP
 RLOAD at an arrow promt (=>).  See also:

    http://www.nlm.nih.gov/mesh/
    http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

 OLDMEDLINE now back to 1950.

 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2005 vocabulary.

 This file contains CAS Registry Numbers for easy and accurate
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=> d que L111

L108      15800 SEA FILE=MEDLINE ABB=ON  PLU=ON  LEE J?/AU
L109       1822 SEA FILE=MEDLINE ABB=ON  PLU=ON  CHUNG J?/AU
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L110        1054 SEA FILE=MEDLINE ABB=ON  PLU=ON  LEE KY?/AU
L111           3 SEA FILE=MEDLINE ABB=ON  PLU=ON  L108 AND L109 AND L110


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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d que L116

L112           1 SEA FILE=EMBASE ABB=ON  PLU=ON  LEE KY?/AU
L113        1554 SEA FILE=EMBASE ABB=ON  PLU=ON  CHUNG J?/AU
L114       13605 SEA FILE=EMBASE ABB=ON  PLU=ON  LEE J?/AU
L116           0 SEA FILE=EMBASE ABB=ON  PLU=ON  L113 AND L114 AND L112


=> file pascal inspec biosis biotechds wpindex anabstr scisearch

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=> d que L120

L117        8901 SEA CHUNG J?/AU
L118       89770 SEA LEE J?/AU
L119        2990 SEA LEE KY?/AU
L120           3 SEA L117 AND L118 AND L119
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=> => dup rem L107 L111 L116 L120
L116 HAS NO ANSWERS
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FILE 'BIOSIS' ENTERED AT 14:36:35 ON 14 OCT 2005
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PROCESSING COMPLETED FOR L107
PROCESSING COMPLETED FOR L111
PROCESSING COMPLETED FOR L116
PROCESSING COMPLETED FOR L120
L121          15 DUP REM L107 L111 L116 L120 (3 DUPLICATES REMOVED)
                 ANSWERS '1-12' FROM FILE HCAPLUS
                 ANSWERS '13-14' FROM FILE MEDLINE
                 ANSWER '15' FROM FILE BIOSIS

=> d ibib abs hitind L121 1-12; d iall L121 13-15

L121 ANSWER 1 OF 15  HCAPLUS  COPYRIGHT 2005 ACS on STN DUPLICATE 1
ACCESSION NUMBER:         2005:101567  HCAPLUS
DOCUMENT NUMBER:          142:254236
TITLE:                    Antiplatelet activity of J78 (2-chloro-3-[2'-bromo,
                          4'-fluoro-phenyl]-amino-8-hydroxy-1,4-naphthoquinone),
                          an antithrombotic agent, is mediated by thromboxane
                          (TX) A2 receptor blockade with TXA2 synthase
                          inhibition and suppression of cytosolic Ca2+
                          mobilization
AUTHOR(S):                Jin, Yong-Ri; Cho, Mi-Ra; Ryu, Chung-Kyu; Chung,
                          Jin-Ho; Yuk, Dong-Yeon; Hong, Jin-Tae; Lee,
                          Kyung-Sup; Lee, Jung-Jin; Lee, Mi-Yea;
                          Lim, Yong; Yun, Yeo-Pyo
CORPORATE SOURCE:         College of Pharmacy, Chungbuk National University,
                          Cheongju, S. Korea
SOURCE:                   Journal of Pharmacology and Experimental Therapeutics
                          (2005), 312(1), 214-219
                          CODEN: JPETAB; ISSN: 0022-3565
PUBLISHER:                American Society for Pharmacology and Experimental
                          Therapeutics
DOCUMENT TYPE:            Journal
LANGUAGE:                 English
AB   We previously reported that J78 (2-chloro-3-[2'-bromo,
     4'-fluoro-phenyl]-amino-8-hydroxy-1,4-naphthoquinone), a newly synthesized
     1,4-naphthoquinone derivative, exhibited a potent antithrombotic effect, which
     might be due to antiplatelet rather than anticoagulation activity.  In the
     present study, possible antiplatelet mechanism of J78 was investigated.
     J78 concentration-dependently inhibited rabbit platelet aggregation induced by
     collagen (10 μg/mL), thrombin (0.05 U/mL), arachidonic acid (100
     μM), and U46619 (9,11-dideoxy-9,11-methanoepoxy-prostaglandin F2; 1
     μM), a thromboxane (TX) A2 mimic, with IC50 values of 0.32±0.01,
     0.44±0.02, 0.50±0.04, and 0.36±0.02 μM, resp.  J78 also
     produced a shift to the right of the concentration-response curve of U46619,
     indicating an antagonistic effect on the TXA2 receptor.  J78
     concentration-dependently inhibited collagen-induced arachidonic acid
liberation.
     In addition, J78 potently suppressed TXA2 formation by platelets that were
```

exposed to arachidonic acid in a concentration-dependent manner but had no effect on the production of PGD2, indicating an inhibitory effect on TXA2 synthase. This was supported by a TXA2 synthase activity assay that J78 concentration-dependently inhibited TXB2 formation converted from PGH2. Furthermore, J78 was also able to inhibit the [Ca2+]i mobilization induced by collagen or thrombin at such a concentration that completely inhibited platelet aggregation. Taken together, these results suggest that the antiplatelet activity of J78 may be mediated by TXA2 receptor blockade with TXA2 synthase inhibition and suppression of cytosolic Ca2+ mobilization.

CC 1-8 (Pharmacology)
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:497379 HCAPLUS
DOCUMENT NUMBER: 143:3732
TITLE: Micro/nano-fabricated glucose sensors using single-walled carbon nanotubes
INVENTOR(S): **Lee, Junghoon**; **Chung, Jaehyun**; **Lee, Kyong-Hoon**
PATENT ASSIGNEE(S): S. Korea
SOURCE: U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005124020	A1	20050609	US 2003-729854	20031205
WO 2005066360	A1	20050721	WO 2003-US38679	20031205

W: CA, JP, KR
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

PRIORITY APPLN. INFO.: US 2003-729854 A 20031205
AB A novel glucose sensor utilizing hydrogen-specific gas sensing capability of single walled carbon nanotubes assembled on microelectrodes. Highly specific glucose sensing was demonstrated using buffered sample solns. with clin. significant concns. The approach enables a simple but powerful bio-sensor reliably operating with a completely new principle, and opens up novel device applications where functional nano-components can be integrated into a bioMEMS device.
IC ICM C12Q001-54
ICS C12M001-34
INCL 435014000; 435287100
CC 9-7 (Biochemical Methods)

L121 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:213787 HCAPLUS
DOCUMENT NUMBER: 140:383873
TITLE: Toward large-scale integration of carbon nanotubes
AUTHOR(S): **Chung, Jaehyun**; **Lee, Kyong-Hoon**; **Lee, Junghoon**; Ruoff, Rodney S.
CORPORATE SOURCE: Department of Mechanical Engineering, Northwestern University, Evanston, IL, 60208-3111, USA
SOURCE: Langmuir (2004), 20(8), 3011-3017
CODEN: LANGD5; ISSN: 0743-7463

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB This paper presents a large-scale assembly method to deposit discrete multiwalled carbon nanotubes (MWCNTs) across gaps present in an electrode array. A parametric study showed that MWCNTs dispersed in a liquid could be deposited to individually span gaps by combining an a.c. and a d.c. elec. field in a given ratio; it was shown that the a.c. field (5 MHz) serves to selectively attract and the d.c. field to guide individual deposition. Repeated trials demonstrated accurate, discrete, and aligned deposition at room temperature with 90% yield over an electrode array having 100 gaps.
CC 76-3 (Electric Phenomena)
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:14962 HCAPLUS
TITLE: Multi-walled carbon nanotubes experiencing electrical breakdown as gas sensors
AUTHOR(S): **Chung, Jaehyun; Lee, Kyong-Hoon; Lee, Junghoon**; Troya, Diego; Schatz, George C.
CORPORATE SOURCE: Mechanical Engineering Department, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Nanotechnology (2004), 15(11), 1596-1602
CODEN: NNOTER; ISSN: 0957-4484
PUBLISHER: Institute of Physics Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new approach to gas sensing using a multi-walled carbon nanotube (MWCNT) subject to elec. breakdown was presented. The elec. resistances of large-diameter MWCNTs were found to decrease in the presence of air after experiencing elec. breakdown, while pristine MWCNTs were not appreciably sensitive. The sensitivity could be controlled by manipulating the level of the elec. breakdown, and larger-diameter MWCNTs showed better sensitivity because they possess more damaged shells that can create more adsorption sites for oxygen mols. It was suggested by theor. calcns. that the oxygen sensitivity might be associated with an oxidized junction that exists between the outer and inner shells of the nanotubes.
CC 57-8 (Ceramics)
Section cross-reference(s): 76
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:776904 HCAPLUS
DOCUMENT NUMBER: 142:256916
TITLE: Microfabricated glucose sensor based on single-walled carbon nanotubes
AUTHOR(S): **Chung, Jaehyun; Lee, Kyong-Hoon; Lee, Junghoon**
CORPORATE SOURCE: Mechanical Engineering Dept., Northwestern University, USA
SOURCE: IEEE International Conference on Micro Electro Mechanical Systems, Technical Digest, 17th, Maastricht, Netherlands, Jan. 25-29, 2004 (2004), 617-620. Institute of Electrical and Electronics Engineers: New York, N. Y.
CODEN: 69FVFS; ISBN: 0-7803-8265-X
DOCUMENT TYPE: Conference
LANGUAGE: English

AB This paper describes a novel glucose sensor that uses the hydrogen-specific gas sensing capability of single walled carbon nanotubes (SWCNTs) assembled on microelectrodes. Highly specific glucose sensing was demonstrated using buffered sample solns. with clin. significant concns. The proposed approach enables a simple but powerful bio-sensor reliably operating with a completely new principle, and opens up novel device applications where functional nano-components are integrated into a bioMEMS device.
CC 9-1 (Biochemical Methods)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:454017 HCAPLUS
TITLE: Bio/chemical sensing by thin membrance transducers
AUTHOR(S): Rodriguez, Raquel; **Chung, Jaehyun**; **Lee, Kyonghoon**; **Lee, Junghoon**
CORPORATE SOURCE: Mechanical Engineering Department, Northwestern University, Evanston, IL, USA
SOURCE: Micro-Electro-Mechanical Systems (2004), 6, 469-472
CODEN: MSIYAW; ISSN: 1096-665X
PUBLISHER: American Society of Mechanical Engineers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB This paper reports the successful design, fabrication and testing of thin membrane transducers that can monitor biochem. reactions through chemical-mech. transduction. Two different membrane materials were chosen: Silicon Nitride (Si3N4) and polydimethylsiloxane (PDMS). In both configurations, a specific mol. binding event on the surface of the diaphragm causes a deflection detected by the capacitance change across a gap between the membrane and a substrate. Preliminary tests presented in this paper demonstrate in-situ monitoring of the formation of a self assembled monolayer (SAM) and biotin-streptavidin binding. The reported mechanism is the first demonstration of a capacitive chemical sensor using a membrane element.
CC 9 (Biochemical Methods)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:283641 HCAPLUS
DOCUMENT NUMBER: 142:14247
TITLE: Process technology to improve integration stability for Cu/low-k (SiOC/FSG hybrid) dual-damascene interconnects
AUTHOR(S): Oh, Hyeok-Sang; Hah, SangRok; **Chung, JuHyuk**; Wee, Young-Jin; Park, Dea-Gun; **Lee, Jung-Woo** ; Kang, Ki-Ho; **Chung, Jin-Sung**; **Lee, Kyoung-Woo**; Lee, Soo-Gun; Song, Won-Sang; Park, Kwang-Myeon
CORPORATE SOURCE: Cu Group (K1), System LSI Division, Samsung Electronics Co., Ltd., Kiheung-Eup Yongin-City, Kyunggi-Do, 449-711, S. Korea
SOURCE: Advanced Metallization Conference 2003, Proceedings of the Conference, Tokyo, Japan, Sept. 29-Oct. 1 and Montreal, QC, Canada, Oct. 21-23, 2003 (2004), Meeting Date 2003, 141-146. Editor(s): Ray, Gary W. Materials Research Society: Warrendale, Pa.
CODEN: 69FFSR; ISBN: 1-55899-757-1
DOCUMENT TYPE: Conference

LANGUAGE: English
AB EM reliability was improved with the advanced technol. in 0.13-μm node device integrated with FSG/SiOC hybrid low-k dual damascene process. The advanced technol. includes advanced PVD Ta(N) process, SiCN deposition process, and longer NH3 plasma treatment. The advanced PVD Ta(N) process prevented void from generating by promoting deposition along sidewall of via bottom. SiCN film with moisture barrier property is supposed to block oxygen diffusion and Cu oxidation and to result in good adhesion with Cu. Longer NH3 plasma treatment improved adhesion between Cu and SiC and decreased stress at Cu/SiC interface. The EM lifetime of samples integrated with advanced processes is improved over 30 yr.
CC 76-3 (Electric Phenomena)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:519881 HCAPLUS
DOCUMENT NUMBER: 139:171767
TITLE: Nanoscale Gap Fabrication by Carbon Nanotube-Extracted Lithography (CEL)
AUTHOR(S): **Chung, Jaehyun; Lee, Kyong-Hoon; Lee, Junghoon**
CORPORATE SOURCE: Mechanical Engineering Department, Northwestern University, Evanston, IL, 60208-3111, USA
SOURCE: Nano Letters (2003), 3(8), 1029-1031
CODEN: NALEFD; ISSN: 1530-6984
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB C nanotube (CNT) -extracted lithog. (CEL) was developed to create high-quality nanoscale gaps defined by the size of CNTs. An individual multiwalled CNT (MWCNT) was deposited across electrodes by the composite elec. field guided assembly method (CEGA) developed previously. After blanket deposition of a metal layer, the MWCNT was removed to obtain a nanoscale gap. The CEL can provide a technique for the mass fabrication of well-defined and precisely positioned nanosized gaps in a reproducible manner.
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 66, 74
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:385718 HCAPLUS
DOCUMENT NUMBER: 141:91227
TITLE: Multi-walled carbon nanotube sensors
AUTHOR(S): **Chung, Jaehyun; Lee, Kyong-Hoon; Lee, Junghoon**
CORPORATE SOURCE: Mechanical Engineering Department, Northwestern University, Evanston, IL, 60208-3111, USA
SOURCE: Transducers '03, International Conference on Solid-State Sensors, Actuators and Microsystems, Digest of Technical Papers, 12th, Boston, MA, United States, June 8-12, 2003 (2003), Volume 1, 718-721. Institute of Electrical and Electronics Engineers: New York, N. Y.
CODEN: 69FHV2; ISBN: 0-7803-7731-1
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Exptl. results that demonstrate the sensing capability of a multi-walled

carbon nanotube (MWCNT) are presented. A MEMS-based fabrication process was developed to fabricate a device where a single MWCNT was precisely assembled across a gap. The device could be used either as a chemical- or a flow sensor depending on design and fabrication process. A MWCNT that experienced an elec. breakdown sensitively reacted to gaseous environment. A MWCNT suspended by the dry etching of substrate functioned as a phys. sensor to detect N2 gas flow. Device fabrication process is suitable to the mass production of CNT-based NEMS/MEMS devices.

CC 49-1 (Industrial Inorganic Chemicals)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:325745 HCAPLUS

DOCUMENT NUMBER: 142:122983

TITLE: CNT extracted lithography

AUTHOR(S): **Chung, Jaehyun**; **Lee, Kyong-Hoon**; **Lee, Junghoon**

CORPORATE SOURCE: Department of Mechanical Engineering, Northwestern University, Evanston, IL, 60208-3111, USA

SOURCE: Micro-Electro-Mechanical Systems (2003), 5, 229-232 CODEN: MSIYAW; ISSN: 1096-665X

PUBLISHER: American Society of Mechanical Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB High quality nanoscale gaps were fabricated using carbon nanotubes (CNTs) as shadow masks for metal deposition. An elec.-field guided assembly was used to deposit an individual multi-walled CNT (MWCNT) across a pair of electrodes. Metal was then deposited by electron-beam evaporation on the substrate where the MWCNT was assembled. Then, the MWCNT was removed by sonication, leaving a pattern that replicates the shape of the MWCNT. This approach enables the mass fabrication of well-defined nanoscale features aligned and positioned with high accuracy.

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L121 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1994:220773 HCAPLUS

DOCUMENT NUMBER: 120:220773

TITLE: Role of alkali promoters in K/MoS2 catalysts for CO-H2 reactions

AUTHOR(S): **Lee, Jae Sung**; Kim, Soonho; **Lee, Kyung Hee**; Nam, In-Sik; **Chung, Jong Shik**; Kim, Young Gul; Woo, Hee Chul

CORPORATE SOURCE: Research Center for Catalytic Technology, Pohang University of Science and Technology (POSTECH) and Research Institute of Industrial Science and Technology (RIST), P.O. Box 125, Pohang, 790-600, S. Korea

SOURCE: Applied Catalysis, A: General (1994), 110(1), 11-25 CODEN: ACAGE4; ISSN: 0926-860X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effect of alkali promoters on selectivity of CO-H2 reactions was studied for K-promoted MoS2 by employing different K salts and pretreatment conditions (oxidized vs. fresh samples). Promoters assisted either chain growth of hydrocarbon products or alc. formation. A good

correlation was observed between pKa of the conjugate acid of each promoter and its space-time yield of alc. formation. Alc. selective promoters such as K2CO3, KOH, and K2S readily removed their counter anions under the reaction conditions to form a new K complex and spread themselves uniformly over MoS2. This complex appeared to serve as an active site which adsorbed CO molecularly and, at the same time, covered the majority of the MoS2 surface which was responsible for dissociative CO adsorption and hydrogenation. Promoters for chain growth such as K2SO4 and KCl maintained their initial chemical states throughout the reactions and showed highly nonuniform lateral distributions. Thus, the promoters had a limited coverage over MoS2, yet modified the electronic state of MoS2 which interacted directly with CO. Exposure of K2CO3- or KOH-promoted MoS2 to the atmospheric for an extended period oxidized the catalyst and caused segregation of K into the bulk of MoS2. Thus, the most of MoS2 surface was exposed, yet modified by K located in the subsurface region of the MoS2. These modified catalysts promoted hydrocarbon chain growth without forming alcs. The results demonstrated that the distribution of promoter was one of the primary factors determining its role in catalytic CO-H2 reactions.

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 67

L121 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:21830 HCAPLUS
DOCUMENT NUMBER: 118:21830
TITLE: Room-temperature oxidation of dipotassium carbonate/molybdenum disulfide catalysts and its effects on alcohol synthesis from carbon monoxide and hydrogen
AUTHOR(S): Woo, Hee Chul; Nam, In Sik; **Lee, Jae Sung**; **Chung, Jong Shik**; **Lee, Kyung Hee**; Kim, Young Gul
CORPORATE SOURCE: Res. Cent. Catal. Technol., Pohang Inst. Sci. Technol., Pohang, 790-600, S. Korea
SOURCE: Journal of Catalysis (1992), 138(2), 525-35
CODEN: JCTLA5; ISSN: 0021-9517
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Potassium-promoted MoS2 is used as a catalyst for mixed alc. synthesis from CO and H2. This study investigates the room-temperature oxidation of the catalyst and its effect on the surface structure and catalytic activity in alc. synthesis at 573 K and 1.5 MPa. Catalysts were stored in the atmospheric or in a vacuum oven for several weeks. The characterization of catalyst was performed using XRD, XPS, FT-IR, and TGA/DTA methods. The XPS data of K2CO3/MoS2 stored in the atmospheric for extended periods indicated the oxidns. of Mo(IV) (as sulfide) to Mo(VI) (as oxide) as well as S2- (as sulfide) to S6+ (as sulfate) on the MoS2 surface. The IR results showed that sulfate species first produced by oxidation had Td symmetry, which was further transformed into C2v (bidentate) upon a prolonged storage. The sulfate species formed on the catalyst surface were stable until they were decomposed above 1000 K. The oxidized K2CO3/MoS2 catalyst showed enhanced catalytic activity and high selectivity to C2+ hydrocarbons, rather than alcs. as did fresh K2CO3/MoS2. These modified catalytic properties were similar to those of fresh K2SO4/MoS2.

CC 22-7 (Physical Organic Chemistry)
Section cross-reference(s): 67

L121 ANSWER 13 OF 15 MEDLINE on STN DUPLICATE 2
ACCESSION NUMBER: 2003084721 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12499852
TITLE: Alteration of functional neuroanatomy of simple object memory in medial temporal lobe epilepsy patients.
AUTHOR: Kang Eunjoo; Nam Hyunwoo; Lee Dong Soo; Lee Sang Kun; **Lee Kyoung-Min**; Park Seong-Ho; **Lee Jae Sung** ; **Chung Jun-Key**; Lee Myung Chul
CORPORATE SOURCE: Institute of Radiation Medicine, Seoul National University Medical Research Center, 28 Yongon-dong, Chongno-gu, Seoul 110-744, Korea.
SOURCE: Neuroreport, (2002 Dec 20) 13 (18) 2475-81.
Journal code: 9100935. ISSN: 0959-4965.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200304
ENTRY DATE: Entered STN: 20030225
Last Updated on STN: 20030406
Entered Medline: 20030404

ABSTRACT:
Using H2 15O PET, we examined the neuroanatomy associated with a simple form of episodic memory in patients with right or left medial temporal lobe epilepsy and normal healthy controls. When line drawings of common objects were memorized and tested after a 30 min delay, no behavioral difference was found between the patient groups and the controls. However, the patients with epilepsy showed greater cortical activations than the control group on the side ipsilateral to the epileptic focus. rCBF in the anterior thalamic region was enhanced in patients relative to the control group. The results showed that long-term dysfunction of the medial temporal lobe might reinforce alternative memory pathways and recruit a distributed cortical network ipsilateral to their epilepsy focus.

CONTROLLED TERM: Check Tags: Male
Adult
Cerebral Cortex: PH, physiology
*Epilepsy, Temporal Lobe: PP, physiopathology
*Epilepsy, Temporal Lobe: RI, radionuclide imaging
Hippocampus: PH, physiology
Humans
Neuronal Plasticity
*Recognition (Psychology): PH, physiology
Research Support, Non-U.S. Gov't
Thalamus: PH, physiology
Tomography, Emission-Computed

L121 ANSWER 14 OF 15 MEDLINE on STN
ACCESSION NUMBER: 2005238769 IN-PROCESS
DOCUMENT NUMBER: PubMed ID: 15875821
TITLE: Toward large-scale integration of carbon nanotubes.
AUTHOR: **Chung Jaehyun**; **Lee Kyong-Hoon**; **Lee Junghoon**; Ruoff Rodney S
SOURCE: Langmuir : ACS journal of surfaces and colloids, (2004 Apr 13) 20 (8) 3011-7.
Journal code: 9882736. ISSN: 0743-7463.
PUB. COUNTRY: United States
DOCUMENT TYPE: Letter
LANGUAGE: English
FILE SEGMENT: NONMEDLINE; IN-PROCESS; NONINDEXED; Priority Journals

ENTRY DATE: Entered STN: 20050510
Last Updated on STN: 20050510

L121 ANSWER 15 OF 15 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2001:275696 BIOSIS
DOCUMENT NUMBER: PREV200100275696
TITLE: A prospective correlation of Lauren's histological classification of stomach cancer with clinicopathological findings including DNA flow cytometry.
AUTHOR(S): **Lee, Kyoo-Hyung** [Reprint author]; **Lee, Je-Hwan**; Cho, Jae-Kun; Kim, Tae-Won; Kang, Yoon-Koo; **Lee, Jung-Shin**; Kim, Woo-Kun; **Chung, Jae-Gul**; Lee, In-Chul; Sun, Hee-Sik
CORPORATE SOURCE: Oncology-Hematology, Department of Medicine, Asan Medical Center, 388-1 Poongnap-dong, Songpa-ku, Seoul, 138-040, South Korea
khlee2@www.amc.seoul.kr
SOURCE: Pathology Research and Practice, (2001) Vol. 197, No. 4, pp. 223-229. print.
CODEN: PARPDS. ISSN: 0344-0338.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 6 Jun 2001
Last Updated on STN: 19 Feb 2002

ABSTRACT:Between November 1990 and December 1992, 217 patients with stomach cancer were enrolled in a prospective study evaluating the prognostic value of DNA flow cytometry. Lauren's histological type was evaluated in 216 cases, of which 102 (47%) were of the diffuse type, 74 (34%) were of the intestinal type, and 40 (19%) were mixed type tumors. Lauren's histological type showed a significant correlation with age ($p = 0.028$), sex ($p = 0.004$), tumor size ($p = 0.002$), T stage ($p = 0.006$), overall TNM stage ($p = 0.008$), histological grade ($p < 0.001$), and tumor ploidy ($p < 0.001$). Intestinal type stomach cancer showed a significantly higher proportion of aneuploidy (diffuse vs. intestinal type; 41/102 (40%) vs. 52/74 (70%)). After a median follow-up of 66.1 months (range, 29.6-78.1), 110 of 216 patients (51%) survived. Patients with intestinal type stomach cancer had a significantly better survival than did those with diffuse type stomach cancer (64% vs. 42% of patients surviving, $p = 0.020$). Our study suggests that there are biological differences between the two sub-types of Lauren's classification of stomach cancer in addition to the morphological differences. Lauren's classification should remain valid in future studies investigating the pathogenetic and clinical aspects of stomach cancer.

CONCEPT CODE: Digestive system - Physiology and biochemistry 14004
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Digestive system - Pathology 14006
Neoplasms - Pathology, clinical aspects and systemic effects 24004
INDEX TERMS: Major Concepts
Digestive System (Ingestion and Assimilation); Tumor Biology
INDEX TERMS: Parts, Structures, & Systems of Organisms
intestine: digestive system
INDEX TERMS: Diseases
stomach cancer: digestive system disease, neoplastic disease, diffuse type, intestinal type, mixed type
Stomach Neoplasms (MeSH)
INDEX TERMS: Methods & Equipment
DNA flow cytometry: analytical method

INDEX TERMS:

Miscellaneous Descriptors
Lauren's histological classification; disease prognosis; disease survival; gender difference; risk factors; tumor ploidy; tumor size; tumor stage

ORGANISM:

Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
human: female, male, patient
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

=> □

TEXT Search

```
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FILE COVERS 1907 - 14 Oct 2005  VOL 143 ISS 17
FILE LAST UPDATED: 13 Oct 2005  (20051013/ED)

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=> d que L16

L3        20680 SEA FILE=HCAPLUS ABB=ON  PLU=ON  NANOTUBES+NT/CT
L4         2884 SEA FILE=HCAPLUS ABB=ON  PLU=ON  MICROELECTRODES+NT/CT
L8           60 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND L4
L13      258565 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GLUCOS?/OBI
L16           4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND L8


=> d que L18

L3        20680 SEA FILE=HCAPLUS ABB=ON  PLU=ON  NANOTUBES+NT/CT
L4         2884 SEA FILE=HCAPLUS ABB=ON  PLU=ON  MICROELECTRODES+NT/CT
L7         9463 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GLUCOSE OXIDASE/CT
L8           60 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND L4
L18           3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L8 AND L7


=> d que L26

L3        20680 SEA FILE=HCAPLUS ABB=ON  PLU=ON  NANOTUBES+NT/CT
L5         4758 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ENZYME ELECTRODES+NT/CT
L6         2046 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GLUCOSE SENSORS+OLD/CT
L7         9463 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GLUCOSE OXIDASE/CT
L26          19 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND L6 AND L5 AND L7


=> d que L27

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L4         2884 SEA FILE=HCAPLUS ABB=ON  PLU=ON  MICROELECTRODES+NT/CT
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L5          4758 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ENZYME ELECTRODES+NT/CT
L6          2046 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GLUCOSE SENSORS+OLD/CT
L7          9463 SEA FILE=HCAPLUS ABB=ON  PLU=ON  GLUCOSE OXIDASE/CT
L27            2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND L6 AND L5 AND L7 AND
                 L4


=> s (L16 or L18 or L26 or L27) not L107

L122          19 (L16 OR L18 OR L26 OR L27) NOT L107

=> file medline

FILE 'MEDLINE' ENTERED AT 14:43:15 ON 14 OCT 2005

 FILE LAST UPDATED: 13 OCT 2005 (20051013/UP). FILE COVERS 1950 TO DATE.

 On December 19, 2004, the 2005 MeSH terms were loaded.

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 RLOAD at an arrow promt (=>). See also:

    http://www.nlm.nih.gov/mesh/
    http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

 OLDMEDLINE now back to 1950.

 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2005 vocabulary.

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=> d que L39

L29           391 SEA FILE=MEDLINE ABB=ON  PLU=ON  NANOTUBES, CARBON/CT
L30          9350 SEA FILE=MEDLINE ABB=ON  PLU=ON  MICROELECTRODES/CT
L31           507 SEA FILE=MEDLINE ABB=ON  PLU=ON  ION-SELECTIVE ELECTRODES/CT
L35        317012 SEA FILE=MEDLINE ABB=ON  PLU=ON  GLUCOS?
L36            10 SEA FILE=MEDLINE ABB=ON  PLU=ON  L29 AND L30
L37             1 SEA FILE=MEDLINE ABB=ON  PLU=ON  L29 AND L31
L38            11 SEA FILE=MEDLINE ABB=ON  PLU=ON  L36 OR L37
L39             1 SEA FILE=MEDLINE ABB=ON  PLU=ON  L38 AND L35


=> d que L43

L29           391 SEA FILE=MEDLINE ABB=ON  PLU=ON  NANOTUBES, CARBON/CT
L32          6401 SEA FILE=MEDLINE ABB=ON  PLU=ON  BIOSENSING TECHNIQUES/CT
L35        317012 SEA FILE=MEDLINE ABB=ON  PLU=ON  GLUCOS?
L40            40 SEA FILE=MEDLINE ABB=ON  PLU=ON  L29 AND L32
L41             9 SEA FILE=MEDLINE ABB=ON  PLU=ON  L40 AND L35
L42         17523 SEA FILE=MEDLINE ABB=ON  PLU=ON  ELECTROCHEMISTRY/CT
L43             6 SEA FILE=MEDLINE ABB=ON  PLU=ON  L41 AND L42


=> d que L44

L29           391 SEA FILE=MEDLINE ABB=ON  PLU=ON  NANOTUBES, CARBON/CT
L33          2418 SEA FILE=MEDLINE ABB=ON  PLU=ON  GLUCOSE OXIDASE/CT
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printed with author search

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L42        17523 SEA FILE=MEDLINE ABB=ON  PLU=ON  ELECTROCHEMISTRY/CT
L44            6 SEA FILE=MEDLINE ABB=ON  PLU=ON  L29 AND L42 AND L33


=> s (L39 or L43 or L44) not L111

L123           8 (L39 OR L43 OR L44) NOT L111

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=> d que L66

L52          319 SEA FILE=EMBASE ABB=ON  PLU=ON  NANOTUBE/CT
L56          324 SEA FILE=EMBASE ABB=ON  PLU=ON  AMPEROMETRIC BIOSENSOR/CT
L60       259838 SEA FILE=EMBASE ABB=ON  PLU=ON  GLUCOS?
L65            2 SEA FILE=EMBASE ABB=ON  PLU=ON  L52 AND L56 AND L60
L66            1 SEA FILE=EMBASE ABB=ON  PLU=ON  L65 AND SCANNING


=> s L66 not L116

L124           1 L66 NOT L116

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=> d que L94

L74 43086 SEA NANOTUB?
L75 731415 SEA GLUCOS?
L91 8929 SEA HYDROGEN GAS
L92 197 SEA L74 AND L91
L94 1 SEA L92 AND L75

=> d que L98

L74 43086 SEA NANOTUB?
L76 17712 SEA GLUCOSE OXIDASE
L77 656483 SEA MICROELECTROD? OR ELECTROD?
L79 165 SEA L74 AND L76
L80 132 SEA L79 AND L77
L83 1503024 SEA GAS
L98 2 SEA L80 AND L83

=> d que L100

L74 43086 SEA NANOTUB?
L76 17712 SEA GLUCOSE OXIDASE
L77 656483 SEA MICROELECTROD? OR ELECTROD?
L79 165 SEA L74 AND L76
L80 132 SEA L79 AND L77
L82 809921 SEA HYDROGEN
L86 12390 SEA SENS? (2A) GLUCOS?
L99 43 SEA L80 AND L82
L100 25 SEA L99 AND L86

~~=> s (L94 or L98 or L100) not L120~~

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=> s (L94 or L98 or L100)
L125 26 (L94 OR L98 OR L100)

=> => dup rem L122 L123 L124 L125
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FILE 'EMBASE' ENTERED AT 14:46:20 ON 14 OCT 2005

PROCESSING COMPLETED FOR L122
PROCESSING COMPLETED FOR L123
PROCESSING COMPLETED FOR L124
PROCESSING COMPLETED FOR L125
L126 31 DUP REM L122 L123 L124 L125 (23 DUPLICATES REMOVED)
ANSWERS '1-19' FROM FILE HCAPLUS
ANSWERS '20-26' FROM FILE MEDLINE
ANSWER '27' FROM FILE EMBASE
ANSWER '28' FROM FILE PASCAL
ANSWER '29' FROM FILE BIOTECHDS
ANSWERS '30-31' FROM FILE SCISEARCH

=> d ibib abs hitind L126 1-19; d iall L126 20-31

L126 ANSWER 1 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2005:561923 HCAPLUS
DOCUMENT NUMBER: 143:189283
TITLE: Peptide Nanotube-Modified Electrodes for Enzyme-Biosensor Applications
AUTHOR(S): Yemini, Miri; Reches, Meital; Gazit, Ehud; Rishpon, Judith
CORPORATE SOURCE: Department of Molecular Microbiology and Biotechnology, George S. Wise Faculty of Life Sciences, Tel Aviv University, Tel Aviv-Jaffa, 69978, Israel
SOURCE: Analytical Chemistry (2005), 77(16), 5155-5159
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The fabrication and notably improved performance of composite electrodes based on modified self-assembled diphenylalanine peptide nanotubes is described. Peptide nanotubes were attached to gold electrodes, and the authors studied the resulting electrochem. behavior using cyclic voltammetry and chronoamperometry. The peptide nanotube-based electrodes demonstrated a direct and unmediated response to hydrogen peroxide and NADH at a potential of +0.4 V (vs. SCE). This biosensor enables a

sensitive determination of glucose by monitoring the hydrogen peroxide produced by an enzymic reaction between the glucose oxidase attached to the peptide nanotubes and glucose. In addition, the marked electrocatalytic activity toward NADH enabled a sensitive detection of ethanol using ethanol dehydrogenase and NAD+. The peptide nanotube-based amperometric biosensor provides a potential new tool for sensitive biosensors and biomol. diagnostics.

CC 9-1 (Biochemical Methods)

IT Biosensors
Enzyme electrodes
(amperometric; self-assembled peptide nanotube-modified electrodes for enzyme-biosensor applications)

IT **Nanotubes**
(diphenylalanine; self-assembled peptide nanotube-modified electrodes for enzyme-biosensor applications)

IT **Glucose sensors**
(self-assembled peptide nanotube-modified electrodes for immobilized glucose oxidase-glucose biosensor applications)

IT **9001-37-0D**, Glucose oxidase, conjugates with thiolated diphenylalanine nanotubes-gold electrodes
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); CAT (Catalyst use); DEV (Device component use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(self-assembled peptide nanotube-modified electrodes for immobilized glucose oxidase-glucose biosensor applications)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 2 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 3
ACCESSION NUMBER: 2005:124128 HCAPLUS
DOCUMENT NUMBER: 143:129143
TITLE: Electrochemical biosensing platforms using phthalocyanine-functionalized carbon nanotube electrode
AUTHOR(S): Ye, Jian-Shan; Wen, Ying; Zhang, Wei De; Cui, Hui Fang; Xu, Guo Qin; Sheu, Fwu-Shan
CORPORATE SOURCE: Department of Biological Sciences, National University of Singapore, Singapore, 117543, Singapore
SOURCE: Electroanalysis (2005), 17(1), 89-96
CODEN: ELANEU; ISSN: 1040-0397
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Iron-phthalocyanines (FePc) are functionalized at multi-walled carbon nanotubes (MWNTs) to remarkably improve the sensitivity toward hydrogen peroxide. We constructed a highly sensitive and selective glucose sensor on FePc-MWNTs electrode based on the immobilization of glucose oxidase (GOD) on poly-o-aminophenol (POAP)-electropolymd. electrode surface. SEM images indicate that GOD enzymes trapped in POAP film tend to deposit primarily on the curved tips and evenly disperse along the sidewalls. The resulting GOD POAP/FePc-MWNTs biosensor exhibits excellent performance for glucose with a rapid response (less than 8 s), a wide linear range (up to 4.0 + 10-3 M), low detection limits (2.0 + 10-7 M with a signal-to-noise of 3), a highly reproducible response (RSD of 2.6%), and long-term stability (120 days). Such characteristics may be attributed to the catalytic activity of FePc and carbon nanotube, permselectivity of POAP film, as well as the large surface area of carbon nanotube materials.

CC 9-1 (Biochemical Methods)

IT **Nanotubes**

(carbon; electrochem. biosensing platforms using phthalocyanine-functionalized multi-walled carbon nanotube electrode with immobilized enzyme)
IT **Glucose sensors**
(electrochem. biosensing platforms using phthalocyanine-functionalized multi-walled carbon nanotube electrode with immobilized enzyme)
IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(immobilized; electrochem. biosensing platforms using phthalocyanine-functionalized multi-walled carbon nanotube electrode with immobilized enzyme)
REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 3 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 4
ACCESSION NUMBER: 2003:984211 HCAPLUS
DOCUMENT NUMBER: 140:142015
TITLE: Electrochemical biosensing platforms using platinum nanoparticles and carbon nanotubes
AUTHOR(S): Hrapovic, Sabahudin; Liu, Yali; Male, Keith B.; Luong, John H. T.
CORPORATE SOURCE: Biotechnology Research Institute, National Research Council Canada, Montreal, QC, H4P 2R2, Can.
SOURCE: Analytical Chemistry (2004), 76(4), 1083-1088
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Platinum nanoparticles with a diameter of 2-3 nm were prepared and used in combination with single-wall carbon nanotubes (SWCNTs) for fabricating electrochem. sensors with remarkably improved sensitivity toward hydrogen peroxide. Nafion, a perfluorosulfonated polymer, was used to solubilize SWCNTs and also displayed strong interactions with Pt nanoparticles to form a network that connected Pt nanoparticles to the electrode surface. TEM and AFM micrographs illustrated the deposition of Pt nanoparticles on carbon nanotubes whereas cyclic voltammetry confirmed an elec. contact through SWCNTs between Pt nanoparticles and the glassy carbon (GC) or carbon fiber backing. With glucose oxidase (GOx) as an enzyme model, we constructed a GC or carbon fiber microelectrode-based biosensor that responds even more sensitively to glucose than the GC/GOx electrode modified by Pt nanoparticles or CNTs alone. The response time and detection limit (S/N = 3) of this biosensor was determined to be 3 s and 0.5 μM, resp.
CC 9-7 (Biochemical Methods)
IT **Nanotubes**
(carbon; electrochem. biosensing platforms using platinum nanoparticles and carbon nanotubes)
IT Cyclic voltammetry
Enzyme electrodes
Microelectrodes
Nanoparticles
Transmission electron microscopy
(electrochem. biosensing platforms using platinum nanoparticles and carbon nanotubes)
IT 50-99-7, D-**Glucose**, analysis
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(electrochem. biosensing platforms using platinum nanoparticles and carbon nanotubes)

IT **9001-37-0, Glucose** oxidase
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process); USES (Uses)
(electrochem. biosensing platforms using platinum nanoparticles and carbon nanotubes)
REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 7
ACCESSION NUMBER: 2003:638613 HCAPLUS
DOCUMENT NUMBER: 140:266944
TITLE: Biosensors based on aligned carbon nanotubes coated with inherently conducting polymers
AUTHOR(S): Gao, Mei; Dai, Liming; Wallace, Gordon G.
CORPORATE SOURCE: Division of Molecular Science, CSIRO, VIC 3169, Australia
SOURCE: Electroanalysis (2003), 15(13), 1089-1094
CODEN: ELANEU; ISSN: 1040-0397
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The use of multiwalled aligned carbon nanotubes provides a novel electrode platform for inherently conducting polymer based biosensors. The example used here to highlight the usefulness of such a platform is the polypyrrole based glucose oxidase system for detection of glucose. The use of these three dimensional electrodes offers advantages in that large accessible enzyme loadings can be obtained within an ultrathin layer. It has also been found that the detection of H2O2 at these new electrode structures containing iron loaded nanotube tips can be achieved at low anodic potentials. The result is a sensitive and selective glucose sensor.
CC 9-1 (Biochemical Methods)
IT Electrodes
Glucose sensors
Microarray technology
(biosensors based on aligned carbon nanotubes coated with inherently conducting polymers)
IT **Nanotubes**
(carbon; biosensors based on aligned carbon nanotubes coated with inherently conducting polymers)
IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(biosensors based on aligned carbon nanotubes coated with inherently conducting polymers)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:1021816 HCAPLUS
DOCUMENT NUMBER: 143:301972
TITLE: Carbon nanotube containing ink based electrode biosensor
INVENTOR(S): Gotoh, Masao; Koide, Satoshi; Kurusu, Fumiyo; Nakamura, Hideaki; Karube, Isao
PATENT ASSIGNEE(S): National Institute of Advanced Industrial Science and Technology, Japan
SOURCE: PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005088288	A1	20050922	WO 2005-JP2699	20050221

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 2004-66984 A 20040310

AB Disclosed is a sensor using a material with high catalyst activity such as carbon nanotube which can be used as a biosensor that is excellent in selectivity of interfering substances as well as in productivity, economical efficiency and convenience. Specifically disclosed is a carbon nanotube biosensor having electrodes obtained by printing ink on a substrate, where at least one of carbon nanotube, carbon nanohorn, cocoon, carbon nanocoil, fullerene and derivs. of those; carbon black or graphite; a binder resin; organic solvent; and preferably addnl. a metal powder are added to the ink.

IC ICM G01N027-30
ICS C09D011-00; C12M001-00; C12N015-09; G01N027-327; G01N037-00
CC 9-1 (Biochemical Methods)
IT Biosensors
Cocoon
Electrodes
Glass substrates
Glucose sensors
Printing (impact)
Screen printing
(carbon nanotube containing ink based electrode biosensor)
IT **Nanotubes**
(carbon; carbon nanotube containing ink based electrode biosensor)
IT **9001-37-0D**, Glucose oxidase, potassium ferricyanide mixture
9001-55-2D, Hydroxybutyrate dehydrogenase, potassium ferricyanide mixture
9001-96-1D, Pyruvate oxidase, potassium ferricyanide mixture 9025-13-2D, Creatininase, potassium ferricyanide mixture 9026-00-0, Cholesterol esterase 9028-53-9D, Glucose dehydrogenase, potassium ferricyanide mixture
9029-22-5D, Sarcosine oxidase, potassium ferricyanide mixture 9031-72-5D, Alcohol dehydrogenase, potassium ferricyanide mixture 37340-58-2D, Creatinase, potassium ferricyanide mixture 81669-60-5D, Glucose dehydrogenase, potassium ferricyanide mixture 134093-03-1D, Fructosylamine oxidase, potassium ferricyanide mixture
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(added to ink; carbon nanotube containing ink based electrode biosensor)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:348024 HCAPLUS
TITLE: An amperometric glucose biosensor based on glucose oxidase immobilized in electropolymerized

poly(o-aminophenol) and carbon nanotubes composite film on a gold electrode
AUTHOR(S): Pan, Dawei; Chen, Jinhua; Yao, Shouzhuo; Tao, Wenyan; Nie, Lihua
CORPORATE SOURCE: State Key Laboratory of Chemo/Biosensing and Chemometrics, College of Chemistry and Chemical Engineering, Hunan University, Changsha, 410082, Peop. Rep. China
SOURCE: Analytical Sciences (2005), 21(4), 367-371
CODEN: ANSCEN; ISSN: 0910-6340
PUBLISHER: Japan Society for Analytical Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An amperometric glucose biosensor is developed that is based on immobilization of glucose oxidase (GOD) in a composite film of poly(o-aminophenol) (POAP) and carbon nanotubes (CNT), which are electrochem. co-polymerized at a gold (Au) electrode. Because of the high surface/volume ratio and excellent elec. conductivity of CNT, the biosensor based on an Au/POAP/CNT/GOD electrode has lower detection limit (0.01 mM), larger maximum response current (0.24 mA cm-2) and higher sensitivity (11.4 mA M-1 cm-2) than the values of the biosensor based on an Au/POAP/GOD electrode. Addnl., the biosensor shows fast response time, large response current, and good anti-interferent ability for ascorbic acid, uric acid and acetaminophen. Good reproducibility and stability of the biosensor are also observed
CC 9-1 (Biochemical Methods)
IT Biosensors
Electric conductivity
Glucose sensors
Immobilization, molecular or cellular
Surface area
(amperometric glucose biosensor based on glucose oxidase immobilized in electropolymd. poly(o-aminophenol) and carbon nanotubes composite film on a gold electrode)
IT **Nanotubes**
(carbon; amperometric glucose biosensor based on glucose oxidase immobilized in electropolymd. poly(o-aminophenol) and carbon nanotubes composite film on a gold electrode)
IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(amperometric glucose biosensor based on glucose oxidase immobilized in electropolymd. poly(o-aminophenol) and carbon nanotubes composite film on a gold electrode)
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:433101 HCAPLUS
DOCUMENT NUMBER: 143:139348
TITLE: Noninvasive and continuous recordings of auxin fluxes in intact root apex with a carbon nanotube-modified and self-referencing microelectrode
AUTHOR(S): Mancuso, Stefano; Marras, Anna Maria; Magnus, Volker; Baluska, Frantisek
CORPORATE SOURCE: Dipartimento di Ortoflorofrutticoltura, Polo Scientifico, Universita di Firenze, Sesto Fiorentino (FI), 50019, Italy
SOURCE: Analytical Biochemistry (2005), 341(2), 344-351

CODEN: ANBCA2; ISSN: 0003-2697
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Auxin (also known as indole-3-acetic acid, IAA) represents an ancient signaling mol. of plants that also exerts bioactive actions on yeast and animal cells. Importantly, IAA emerges as a new anticancer agent due to the ability of oxidatively activated IAA to selectively kill tumor cells. IAA acts as a pheromone-like mol. in brown algae, whereas the hormone concept of IAA dominates current plant biol. However, recent advances also favor the morphogen- and transmitter-like nature of IAA in plants, making this small mol. one of the most unique mols. in the eukaryotic superkingdom. Here, we introduced new technol. for the continuous measuring of IAA fluxes in living cells, tissues, and whole organs that is based on a carbon nanotube-modified and self-referencing microelectrode specific for IAA. This technique not only will advance our knowledge of how IAA regulates plant development but will also be applicable in medicine for its potential use in cancer therapy.
CC 64-2 (Pharmaceutical Analysis)
Section cross-reference(s): 9, 11, 72
IT **Nanotubes**
(carbon; noninvasive and continuous recordings of auxin fluxes in intact root apex with a carbon nanotube-modified platinum microelectrode)
IT Antitumor agents
Fluxes
Immobilization, molecular or cellular
Microelectrodes
(noninvasive and continuous recordings of auxin fluxes in intact root apex with a carbon nanotube-modified platinum microelectrode)
IT 50-99-7, **Glucose**, analysis 57-50-1, Sucrose, analysis 86-87-3, NAA 88-82-4, 2,3,5-Triiodobenzoic acid 94-75-7, 2,4-D, analysis 132-66-1, N-1-Naphthylphthalamic acid 7447-40-7, Potassium chloride, analysis 7487-88-9, Magnesium sulfate, analysis 7558-80-7, Sodium dihydrogen phosphate 7757-79-1, Potassium nitrate, analysis 7758-98-7, Copper sulfate, analysis 7773-01-5, Manganese chloride 7778-77-0, Potassium dihydrogen phosphate 10124-37-5, Calcium nitrate 20350-15-6, Brefeldin A 26628-22-8, Sodium azide
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(interferent species; noninvasive and continuous recordings of auxin fluxes in intact root apex with a carbon nanotube-modified platinum microelectrode)
REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:200957 HCAPLUS
DOCUMENT NUMBER: 143:244372
TITLE: Solution phase, near infrared optical sensors based on single walled carbon nanotubes
AUTHOR(S): Barone, Paul W.; Baik, Seunghyun; Strano, Michael S.
CORPORATE SOURCE: Department of Chemical and Biomolecular Engineering, University of Illinois - Urbana/Champaign, Urbana, IL, 61801, USA
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2005), 46(1), 227-228
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

AB The mechanisms of signal transduction for solution phase, near-IR sensors using single walled carbon nanotubes that modulate their emission in response to the adsorption of specific biomols. were elucidated. New routes to engineer selective coatings onto the nanotube surface were examined, and the mechanisms of optical modulation for sensor applications were also elucidated. As an application, β-D-glucose sensing was investigated as a model system. It was shown that a target analyte can interact with these functional groups to quant. modulate fluorescent emission.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 3, 7

IT **Nanotubes**
(carbon; solution phase near IR optical sensors based on single walled carbon nanotubes and glucose determination)

IT Fluorescence
Fluorometry
Glucose sensors
(solution phase near IR optical sensors based on single walled carbon nanotubes and glucose determination)

IT **9001-37-0**, Glucose oxidase
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(solution phase near IR optical sensors based on single walled carbon nanotubes and glucose determination)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:632866 HCAPLUS
DOCUMENT NUMBER: 141:136632
TITLE: Method for manufacturing electrochemical sensor, and structure thereof
INVENTOR(S): Huang, Chun-Mu
PATENT ASSIGNEE(S): Taiwan
SOURCE: U.S. Pat. Appl. Publ., 46 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004149578	A1	20040805	US 2003-354684	20030130
WO 2004070373	A1	20040819	WO 2003-US3084	20030131

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-354684 A 20030130

AB A method for manufacturing an electrochem. sensor and a structure thereof are provided. The method includes steps of (a) providing an injection-molding

device, (b) providing an isolating substrate having a 1st recess and a 1st through hole, (c) positing the isolating substrate in the injection-molding device, (d) injecting a conductive plastic material into the injection-molding device for forming a conductive strip disposed in the 1st recess and including an output terminal and a testing electrode disposed in the 1st through hole, (e) providing a chemical reagent, and (f) positing the chemical reagent on the testing electrode for testing a sample solution

IC ICM G01N027-26
INCL 204403010; 204416000; 029592100
CC 9-1 (Biochemical Methods)
IT **Nanotubes**
(carbon; design and fabrication of disposable electrochem. sensor for analyte determination in fluid sample)
IT Blood analysis
Conducting polymers
Electronic device fabrication
Enzyme electrodes
Glucose sensors
Powders
(design and fabrication of disposable electrochem. sensor for analyte determination in fluid sample)
IT **9001-37-0**, Glucose oxidase 9002-12-4, Uricase 9026-00-0, Cholesterol esterase 9028-76-6, Cholesterol oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(design and fabrication of disposable electrochem. sensor for analyte determination in fluid sample)

L126 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:988558 HCAPLUS
DOCUMENT NUMBER: 142:332055
TITLE: Glucose biosensor based on multi-walled carbon nanotube modified glassy carbon electrode
AUTHOR(S): Dai, Yi-Qing; Shiu, Kwok-Keung
CORPORATE SOURCE: Department of Chemistry, Hong Kong Baptist University, Kwoloon Tong, Hong Kong
SOURCE: Electroanalysis (2004), 16(20), 1697-1703
CODEN: ELANEU; ISSN: 1040-0397
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An amperometric glucose biosensor based on multi-walled carbon nanotube (MWCNT) modified glassy carbon electrode has been developed. MWCNT-modified glassy carbon electrode was obtained by casting the electrode surface with multi-walled carbon nanotube materials. Glucose oxidase was co-immobilized on the MWCNT-modified glassy carbon surface by electrochem. deposition of poly(o-phenylenediamine) film. Enhanced catalytic electro-reduction behavior of oxygen at MWCNT-modified electrode surface was observed at a potential of - 0.40 V (vs. Ag|AgCl) in neutral medium. The steady-state amperometric response to glucose was determined at a selected potential of -0.30 V by means of the reduction of dissolved oxygen consumed by the enzymic reaction. Common interferents such as ascorbic acid, 4-acetamidophenol, and uric acid did not interfere in the glucose determination The linear range for glucose determination extended to 2.0 mM and the
detection limit was estimated to be about 0.03 mM.
CC 9-1 (Biochemical Methods)
IT **Glucose sensors**
(Amperometric; glucose biosensor based on multi-walled carbon nanotube

modified glassy carbon electrode)
IT **Nanotubes**
(carbon, multi-walled; glucose biosensor based on multi-walled carbon nanotube modified glassy carbon electrode)
IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process); USES (Uses)
(glucose biosensor based on multi-walled carbon nanotube modified glassy carbon electrode)
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:1030422 HCAPLUS
DOCUMENT NUMBER: 142:351419
TITLE: Glucose biosensor based on the enzyme electrode with carbon nanotube/platinum nanoparticle
AUTHOR(S): Zhu, Yu'nu; Peng, Tuzhi; Li, Jianping
CORPORATE SOURCE: Department of Chemistry, Zhejiang University, Hangzhou, 310028, Peop. Rep. China
SOURCE: Fenxi Huaxue (2004), 32(10), 1299-1303
CODEN: FHHHDT; ISSN: 0253-3820
PUBLISHER: Kexue Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB An amperometric glucose biosensor based on the enzyme electrode with carbon nanotube/platinum nanoparticle modified on glassy carbon electrode surface (CNT-Pt/GCE) has been fabricated. The glucose oxidase (GOD) in gelatin is cross-linked by the use of glutaraldehyde. Comparing with normal GOD/Pt electrode, the anal. property of GOD/CNT-Pt/GCE electrode is improved. The detection limit of glucose decreases from 6.7+10-3moL/L to 8.3+10-4mol/L; the working potential lowers from 0.65V to 0.45V; the response time shortens from 30s to 5s. It is demonstrated that the CNT-Pt/GCE with high electro-catalytic activity is a suitable basic electrode for preparing enzyme electrodes.
CC 9-1 (Biochemical Methods)
IT **Glucose sensors**
(Amperometric; glucose biosensor based on enzyme electrode with carbon nanotube/platinum nanoparticle)
IT **Nanotubes**
(carbon; glucose biosensor based on enzyme electrode with carbon nanotube/platinum nanoparticle)
IT Crosslinking
Electronic device fabrication
Enzyme electrodes
Nanoparticles
(glucose biosensor based on enzyme electrode with carbon nanotube/platinum nanoparticle)
IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(glucose biosensor based on enzyme electrode with carbon nanotube/platinum nanoparticle)

L126 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:382170 HCAPLUS
DOCUMENT NUMBER: 141:391204
TITLE: Diamond and carbon nanotube glucose sensors based on electropolymerization

AUTHOR(S): Loh, Kian Ping; Zhao, Sheng Liang; Zhang, Wei De
CORPORATE SOURCE: Department of Chemistry, National University of Singapore, Singapore, 117543, Singapore
SOURCE: Diamond and Related Materials (2004), 13(4-8), 1075-1079
CODEN: DRMTE3; ISSN: 0925-9635
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The glucose sensing properties of diamond and carbon nanotube (CNT) electrodes were evaluated comparatively. Amperometric glucose sensors had been constructed on boron-doped diamond (BDD) and CNT electrodes based on the immobilization of glucose oxidase (GOD) on 3,3'-diaminobenzidine (DAB)-electropolymd. electrode surface. DAB forms a self-limiting layer with NH2 functional groups for tethering to GOD mol. The cyclic voltammograms of DAB on BDD and CNT revealed important structural differences between the two electrode surfaces. Modification with DAB allowed the CNT to show selective response to glucose at a lower electrode voltage of 0.3 V, and with suppressed interference signals from ascorbic acid (LAA) and uric acid (UA). No selective response to glucose was obtained from DAB-modified BDD electrode.

CC 9-1 (Biochemical Methods)

IT **Glucose sensors**
(amperometric; diamond and carbon nanotube glucose sensors based on electropolymn. of diaminobenzidine for glucose oxidase immobilization)

IT **Nanotubes**
(carbon; diamond and carbon nanotube glucose sensors based on electropolymn. of diaminobenzidine for glucose oxidase immobilization)

IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(diamond and carbon nanotube glucose sensors based on electropolymn. of diaminobenzidine for glucose oxidase immobilization)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 13 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:776815 HCAPLUS
DOCUMENT NUMBER: 142:256909
TITLE: A polypyrrole-carbon-nanotube (PPY-MWNT) nanocomposite glucose sensor
AUTHOR(S): Teh, Kwok-Siong; Lin, Liwei
CORPORATE SOURCE: Berkeley Sensors and Actuators Center, Department of Mechanical Engineering, University of California, Berkeley, CA, USA
SOURCE: IEEE International Conference on Micro Electro Mechanical Systems, Technical Digest, 17th, Maastricht, Netherlands, Jan. 25-29, 2004 (2004), 395-398. Institute of Electrical and Electronics Engineers: New York, N. Y.
CODEN: 69FVFS; ISBN: 0-7803-8265-X
DOCUMENT TYPE: Conference
LANGUAGE: English

AB We present a novel, two-terminal enzymic mol. device sensitive to glucose concentration based on doped polypyrrole/multi-walled-carbon-nanotube (PPy-MWNT)
nanocomposite that obviates the need for reference electrode and electron mediators. This is realized via reversible, oxidation-reduction induced conductivity
change of a dodecylbenzenesulfonate (DBS)-doped PPy-MWNT membrane spanning

across a microgap adjoining two electrodes. In this work, we discovered that although glucose oxidase (GOx)-laden, DBS-doped PPy membrane is sensitive to glucose between 0-10mM, the incorporation of MWNT into similar membrane extends its detection ceiling to 20mM, which covers the physiol. important range for diabetics.

CC 9-1 (Biochemical Methods)

IT **Nanotubes**
(carbon, multi-walled; polypyrrole-carbon-nanotube (PPY-MWNT) nanocomposite glucose sensor)

IT **Glucose sensors**
Membranes, nonbiological
Nanocomposites
Polymerization
Redox reaction
Reference electrodes
(polypyrrole-carbon-nanotube (PPY-MWNT) nanocomposite glucose sensor)

IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(polypyrrole-carbon-nanotube (PPY-MWNT) nanocomposite glucose sensor)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 14 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:996277 HCAPLUS
DOCUMENT NUMBER: 140:142016
TITLE: Glucose biosensors based on carbon nanotube nanoelectrode ensembles
AUTHOR(S): Lin, Yuehe; Lu, Fang; Tu, Yi; Ren, Zhifeng
CORPORATE SOURCE: Pacific Northwest National Laboratory, Richland, WA, 99352, USA
SOURCE: Nano Letters (2004), 4(2), 191-195
CODEN: NALEFD; ISSN: 1530-6984
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB This paper describes the development of glucose biosensors based on carbon nanotube (CNT) nanoelectrode ensembles (NEEs) for the selective detection of glucose. Glucose oxidase was covalently immobilized on CNT NEEs via carbodiimide chemical by forming amide linkages between their amine residues and carboxylic acid groups on the CNT tips. The catalytic reduction of hydrogen peroxide liberated from the enzymic reaction of glucose oxidase upon the glucose and oxygen on CNT NEEs leads to the selective detection of glucose. The biosensor effectively performs a selective electrochem. anal. of glucose in the presence of common interferents (e.g., acetaminophen, uric and ascorbic acids), avoiding the generation of an overlapping signal from such interferers. Such an operation eliminates the need for permselective membrane barriers or artificial electron mediators, thus greatly simplifying the sensor design and fabrication.

CC 9-7 (Biochemical Methods)

IT **Nanotubes**
(carbon; glucose biosensors based on carbon nanotube nanoelectrode ensembles)

IT Cyclic voltammetry
Enzyme electrodes
Glucose sensors
(glucose biosensors based on carbon nanotube nanoelectrode ensembles)

IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process); USES (Uses)

(glucose biosensors based on carbon nanotube nanoelectrode ensembles)
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 15 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:417196 HCAPLUS
DOCUMENT NUMBER: 139:161694
TITLE: Glucose sensors based on glucose-oxidase-containing polypyrrole/aligned carbon nanotube coaxial nanowire electrodes
AUTHOR(S): Gao, M.; Dai, L.; Wallace, G. G.
CORPORATE SOURCE: CSIRO Molecular Science, VIC 3169, Australia
SOURCE: Synthetic Metals (2003), 137(1-3), 1393-1394
CODEN: SYMEDZ; ISSN: 0379-6779
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Coaxial nanowires consisting of a concentric layer of polypyrrole uniformly coated onto individual aligned nanotubes have provided a novel template for making glucose sensors with a large amount of enzyme electrochem. entrapped into the ultra thin polypyrrole (PPy) film. The aligned structure of carbon nanotubes plays an important role for glucose determination at lower anodic potential with a high sensitivity and selectivity.
In addition, the use of aligned, highly accessible three-dimensional carbon nanotube arrays for oxidizing biomols. is also presented in this paper.
CC 9-7 (Biochemical Methods)
IT **Nanotubes**
(carbon; glucose sensors based on glucose-oxidase-containing polypyrrole/aligned carbon nanotube coaxial nanowire electrodes)
IT Cyclic voltammetry
Enzyme electrodes
Glucose sensors
Immobilization, molecular or cellular
Nanowires
Ultrathin films
(glucose sensors based on glucose-oxidase-containing polypyrrole/aligned carbon nanotube coaxial nanowire electrodes)
IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process); USES (Uses)
(glucose sensors based on glucose-oxidase-containing polypyrrole/aligned carbon nanotube coaxial nanowire electrodes)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 16 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:545538 HCAPLUS
DOCUMENT NUMBER: 139:300794
TITLE: Surface modification of aligned carbon nanotube arrays for electrochemical sensing applications
AUTHOR(S): Soundarrajan, Prabhu; Patil, Ajeeta; Dai, Liming
CORPORATE SOURCE: College of Polymer Science and Polymer Engineering, Department of Polymer Engineering, The University of Akron, Akron, OH, 44304-2909, USA
SOURCE: Journal of Vacuum Science & Technology, A: Vacuum, Surfaces, and Films (2003), 21(4), 1198-1201
CODEN: JVTAD6; ISSN: 0734-2101
PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal
LANGUAGE: English
AB The excellent optoelectronic, mech., and thermal properties of carbon nanotubes have made them very attractive for a wide range of potential applications. However, many applications require the growth of aligned carbon nanotubes with surface modification. The authors have developed a simple pyrolytic method for large-scale production of aligned carbon nanotube arrays perpendicular to the substrate. These aligned carbon nanotube arrays can be transferred onto various substrates of particular interest (e.g., polymer films for organic optoelectronic devices) in either a patterned or non-patterned fashion. The well-aligned structure further allows one to prepare aligned coaxial nanowires by electrochem. depositing a concentric layer of an appropriate conducting polymer onto the individual aligned carbon nanotubes. This approach is particularly attractive, as it allows surface characteristics of the aligned carbon nanotubes to be tuned to meet specific requirements for particular applications while their alignment structure can be largely retained. These aligned carbon nanotubes with tunable surface characteristics are of great significance to various practical applications. The authors demonstrate the use of the conducting-polymer-coated aligned carbon nanotubes for electrochem. sensing applications.
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 9, 38
IT **Enzyme electrodes**
(amperometric; glucose determination by enzyme electrode with immobilized glucose oxidase on polyaniline-coated aligned carbon nanotube modified electrode)
IT **Nanotubes**
(carbon; electrochem. surface modification of aligned carbon nanotube arrays for use as electrochem. sensors)
IT **Glucose sensors**
(glucose determination by enzyme electrode with immobilized glucose oxidase on polyaniline-coated aligned carbon nanotube modified electrode)
IT **9001-37-0**, Glucose oxidase 25233-30-1, Polyaniline
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(glucose determination by enzyme electrode with immobilized glucose oxidase on polyaniline-coated aligned carbon nanotube modified electrode)
REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:706259 HCAPLUS
DOCUMENT NUMBER: 140:334860
TITLE: Multi-walled carbon nanotubes for the immobilization of enzyme in glucose biosensors
AUTHOR(S): Wang, S. G.; Zhang, Qing; Wang, Ruili; Yoon, S. F.; Ahn, J.; Yang, D. J.; Tian, J. Z.; Li, J. Q.; Zhou, Q.
CORPORATE SOURCE: School of Electrical and Electronic Engineering, Microelectronics Centre, Nanyang Technological University, Singapore, 639798, Singapore
SOURCE: Electrochemistry Communications (2003), 5(9), 800-803
CODEN: ECCMF9; ISSN: 1388-2481
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel biosensor, comprised of electrode of gold/multi-walled carbon nanotubes-glucose oxidase (Au/MWNTs-GOD), has been developed. The MWNTs

were produced by microwave plasma enhanced chemical vapor deposition. The enzyme of GOD was immobilized using MWNTs. Performance and characteristics of the fabricated glucose biosensor were assessed with respect to response time, detection limit, pH value and storage stability. The results show that the fabricated biosensor is sensitive and stable in detecting glucose, indicating that MWNTs are a good candidate material for the immobilization of enzyme in glucose biosensor construction.

CC 9-1 (Biochemical Methods)

IT **Nanotubes**
(carbon; gold/multi-walled carbon nanotubes for enzyme immobilization in glucose biosensors)

IT **Glucose sensors**
Immobilization, molecular or cellular
(gold/multi-walled carbon nanotubes for enzyme immobilization in glucose biosensors)

IT **9001-37-0**, Glucose oxidase
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(gold/multi-walled carbon nanotubes for enzyme immobilization in glucose biosensors)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 18 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:869658 HCAPLUS
DOCUMENT NUMBER: 140:107657
TITLE: A novel multi-walled carbon nanotube-based biosensor for glucose detection
AUTHOR(S): Wang, S. G.; Zhang, Qing; Wang, Ruili; Yoon, S. F.
CORPORATE SOURCE: School of Electrical and Electronic Engineering, Microelectronics Centre, Nanyang Technological University, Singapore, 639798, Singapore
SOURCE: Biochemical and Biophysical Research Communications (2003), 311(3), 572-576
CODEN: BBRCA9; ISSN: 0006-291X
PUBLISHER: Elsevier Science
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The bioelectrochem. characteristics of a novel multi-walled carbon nanotube (MWNT)-based biosensor for glucose detection are studied and compared with those of glassy carbon (GC)-based biosensor. The MWNT-based biosensor exhibits a strong glucose response at applied potentials of 0.65 and 0.45 V vs. Ag/AgCl, resp., while GC-based biosensor shows a weak glucose response at 0.65 V and no response at 0.45 V. Besides, the MWNT-based biosensor shows a high stability of 86.7% of the initial activity to glucose after four-month storage, much higher than 37.2%, the corresponding value for a GC-based biosensor. The detection mechanism of the MWNT-based biosensor is also discussed in detail.

CC 9-7 (Biochemical Methods)
Section cross-reference(s): 6, 7

IT **Nanotubes**
(carbon; multi-walled carbon nanotube-based biosensor for glucose detection)

IT **Glucose sensors**
(multi-walled carbon nanotube-based biosensor for glucose detection)

IT **9001-37-0**, Glucose oxidase
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); BUU (Biological use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)

(immobilization; multi-walled carbon nanotube-based biosensor for glucose detection)
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 19 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:639047 HCAPLUS
DOCUMENT NUMBER: 138:200949
TITLE: Direct electron transfer of **glucose** oxidase molecules adsorbed onto carbon nanotube powder microelectrode
AUTHOR(S): Zhao, Yuan-Di; Zhang, Wei-De; Chen, Hong; Luo, Qing-Ming
CORPORATE SOURCE: The Key Laboratory of Biomedical Photonics of Ministry of Education, Huazhong University of Science and Technology, Wuhan, 430074, Peop. Rep. China
SOURCE: Analytical Sciences (2002), 18(8), 939-941
CODEN: ANSCEN; ISSN: 0910-6340
PUBLISHER: Japan Society for Analytical Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The electrochem. response of adsorbing glucose oxidase (GOD) at a carbon nanotube (CNT) powder microelectrode was studied. GOD underwent direct electron transfer and had a very reversible redox process at CNT. The adsorption of GOD onto CNT was multilayer, but only the GOD close to the surface contributed to direct electron transfer according to the surface coverage.
CC 7-7 (Enzymes)
ST **glucose** oxidase electron transfer adsorption carbon nanotube
IT **Nanotubes**
(carbon; direct electron transfer of **glucose** oxidase mols. adsorbed onto carbon nanotube powder microelectrode)
IT **Glucose sensors**
(direct electron transfer of **glucose** oxidase mols. adsorbed onto carbon nanotube powder microelectrode)
IT **Microelectrodes**
(enzyme; direct electron transfer of **glucose** oxidase mols. adsorbed onto carbon nanotube powder microelectrode)
IT Enzymes, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(immobilized; direct electron transfer of **glucose** oxidase mols. adsorbed onto carbon nanotube powder microelectrode)
IT **Enzyme electrodes**
(microelectrodes; direct electron transfer of **glucose** oxidase mols. adsorbed onto carbon nanotube powder microelectrode)
IT 50-99-7, D-**Glucose**, biological studies **9001-37-0**, **Glucose** oxidase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(direct electron transfer of **glucose** oxidase mols. adsorbed onto carbon nanotube powder microelectrode)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 20 OF 31 MEDLINE on STN DUPLICATE 2
ACCESSION NUMBER: 2005165060 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15797337
TITLE: A **glucose** biosensor based on electrodeposition of

palladium nanoparticles and **glucose** oxidase onto Nafion-solubilized carbon nanotube electrode.
AUTHOR: Lim San Hua; Wei Ji; Lin Jianyi; Li Qiutian; Kuayou Jin
CORPORATE SOURCE: Department of Physics, National University of Singapore, Singapore 119260, Singapore.
SOURCE: Biosensors & bioelectronics, (2005 May 15) 20 (11) 2341-6. Journal code: 9001289. ISSN: 0956-5663.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: (EVALUATION STUDIES) Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200508
ENTRY DATE: Entered STN: 20050331
Last Updated on STN: 20050802
Entered Medline: 20050801

ABSTRACT:
Electrodeposition was used for the co-deposition of **glucose** oxidase (GOx) enzymes and palladium nanoparticles onto a Nafion-solubilized carbon nanotube (CNT) film. The co-deposited Pd-GOx-Nafion CNT bioelectrode retains its biocatalytic activity and offers an efficient oxidation and reduction of the enzymatically liberated H2O2, allowing for fast and sensitive ***glucose*** quantification. The combination of Pd-GOx electrodeposition with Nafion-solubilized CNTs enhances the storage time and performance of the sensor. An extra Nafion coating was used to eliminate common interferents such as uric and ascorbic acids. The fabricated Pd-GOx-Nafion CNT **glucose** biosensor exhibits a linear response up to 12 mM **glucose** and a detection limit of 0.15 mM (S/N = 3).

CONTROLLED TERM:
***Biosensing Techniques: IS, instrumentation**
Biosensing Techniques: MT, methods
***Electrochemistry: IS, instrumentation**
Electrochemistry: MT, methods
Electroplating: IS, instrumentation
Electroplating: MT, methods
Enzymes, Immobilized: AN, analysis
Enzymes, Immobilized: CH, chemistry
Equipment Design
Equipment Failure Analysis
*Fluorocarbon Polymers: CH, chemistry
***Glucose: AN, analysis**
Glucose: CH, chemistry
Glucose Oxidase: AN, analysis
***Glucose Oxidase: CH, chemistry**
Nanotubes: CH, chemistry
Nanotubes: UL, ultrastructure
***Nanotubes, Carbon: CH, chemistry**
Nanotubes, Carbon: UL, ultrastructure
*Palladium: CH, chemistry
Solubility

CAS REGISTRY NO.: 39464-59-0 (perfluorosulfonic acid); **50-99-7 (Glucose)**; 7440-05-3 (Palladium)
CHEMICAL NAME: 0 (Enzymes, Immobilized); 0 (Fluorocarbon Polymers); 0 (Nanotubes, Carbon); EC 1.1.3.4 (**Glucose** Oxidase)

L126 ANSWER 21 OF 31 MEDLINE on STN DUPLICATE 5
ACCESSION NUMBER: 2004442717 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15351279
TITLE: **Glucose** biosensor prepared by **glucose** oxidase encapsulated sol-gel and carbon-nanotube-modified basal plane pyrolytic graphite electrode.

AUTHOR: Salimi Abdollah; Compton Richard G; Hallaj Rahman
CORPORATE SOURCE: Department of Chemistry, Kurdistan University, P.O. Box 416, Sanandaj, Iran.. absalimi@yahoo.com
SOURCE: Analytical biochemistry, (2004 Oct 1) 333 (1) 49-56. Journal code: 0370535. ISSN: 0003-2697.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200503
ENTRY DATE: Entered STN: 20040908
Last Updated on STN: 20050325
Entered Medline: 20050324

ABSTRACT:
A new **glucose** biosensor has been fabricated by immobilizing ***glucose*** oxidase into a sol-gel composite at the surface of a basal plane pyrolytic graphite (bppg) electrode modified with multiwall carbon nanotube. First, the bppg electrode is subjected to abrasive immobilization of carbon nanotubes by gently rubbing the electrode surface on a filter paper supporting the carbon nanotubes. Second, the electrode surface is covered with a thin film of a sol-gel composite containing encapsulated **glucose** oxidase. The carbon nanotubes offer excellent electrocatalytic activity toward reduction and oxidation of hydrogen peroxide liberated in the enzymatic reaction between **glucose** oxidase and **glucose**, enabling sensitive determination of **glucose.** The amperometric detection of ***glucose*** is carried out at 0.3 V (vs saturated calomel electrode) in 0.05 M phosphate buffer solution (pH 7.4) with linear response range of 0.2-20 mM **glucose**, sensitivity of 196 nA/mM, and detection limit of 50 microM (S/N=3). The response time of the electrode is < 5s when it is stored dried at 4 degrees C, the sensor showed almost no change in the analytical performance after operation for 3 weeks. The present carbon nanotube sol-gel biocomposite **glucose** oxidase sensor showed excellent properties for the sensitive determination of **glucose** with good reproducibility, remarkable stability, and rapid response and in comparison to bulk modified composite biosensors the amounts of enzyme and carbon nanotube needed for electrode fabrication are dramatically decreased.

CONTROLLED TERM:
***Biosensing Techniques: MT, methods**
Electrochemistry: MT, methods
*Enzymes, Immobilized: CH, chemistry
Gels: CH, chemistry
***Glucose: CH, chemistry**
***Glucose Oxidase: CH, chemistry**
*Graphite: CH, chemistry
Hydrogen Peroxide: CH, chemistry
Hydrogen-Ion Concentration
Nanotechnology: MT, methods
***Nanotubes, Carbon: CH, chemistry**
Sensitivity and Specificity

CAS REGISTRY NO.: **50-99-7 (Glucose)**; 7722-84-1 (Hydrogen Peroxide); 7782-42-5 (Graphite)
CHEMICAL NAME: 0 (Enzymes, Immobilized); 0 (Gels); 0 (Nanotubes, Carbon); EC 1.1.3.4 (**Glucose** Oxidase)

L126 ANSWER 22 OF 31 MEDLINE on STN DUPLICATE 6
ACCESSION NUMBER: 2004004010 MEDLINE
DOCUMENT NUMBER: PubMed ID: 14700233
TITLE: Enzyme-dispersed carbon-nanotube electrodes: a needle microsensor for monitoring **glucose.**
AUTHOR: Wang Joseph; Musameh Mustafa
CORPORATE SOURCE: Department of Chemistry and Biochemistry, New Mexico State

University, Las Cruces, NM 88003, USA.
SOURCE: Analyst, (2003 Nov) 128 (11) 1382-5.
Journal code: 0372652. ISSN: 0003-2654.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200403
ENTRY DATE: Entered STN: 20040106
Last Updated on STN: 20040316
Entered Medline: 20040315

ABSTRACT:
The preparation of an enzyme-dispersed carbon-nanotube (CNT) electrode, based on mixing **glucose** oxidase (GOx) within CNT, is described. The new binderless biocomposite was packed within a 21-gauge needle and used for amperometric monitoring of **glucose.** The resulting microsensor offers a low-potential highly selective and sensitive detection of **glucose.** The high sensitivity and selectivity are coupled to a wide linear range, prolonged lifetime and oxygen independence. About 80% of the GOx activity is retained during a 24 h thermal stress at 90 degrees C, reflecting the enzyme-stabilization action of CNT. The marked electrocatalytic action towards hydrogen peroxide allows highly selective detection of the **glucose** substrate at -0.1 V (vs. Ag/AgCl) with no interferences from coexisting ascorbic acid, acetaminophen or uric acid. Linearity prevails up to 40 mM ***glucose*** (with analytically useful signals observed up to 0.1 M). Factors affecting the performance of the CNT-based **glucose** biosensor were assessed and optimized. The attractive performance of the new needle electrode offers great promise for continuous monitoring of **glucose** in connection to the management of diabetes, and for the biosensing of other metabolites.

CONTROLLED TERM: Electrochemistry: MT, methods
***Glucose: AN, analysis**
Microchemistry
Microelectrodes
Monitoring, Physiologic
Nanotubes, Carbon
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
CAS REGISTRY NO.: **50-99-7 (Glucose)**
CHEMICAL NAME: 0 (Nanotubes, Carbon)

L126 ANSWER 23 OF 31 MEDLINE on STN
ACCESSION NUMBER: 2003379275 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12916096
TITLE: Chemical and biochemical sensing with modified single walled carbon nanotubes.
AUTHOR: Davis Jason J; Coleman Karl S; Azamian Bobak R; Bagshaw Claire B; Green Malcolm L H
CORPORATE SOURCE: Inorganic Chemistry Laboratory, University of Oxford South Parks Road, Oxford OX1 3QR, UK.. jason.davis@chem.ox.ac.uk
SOURCE: Chemistry (Weinheim an der Bergstrasse, Germany), (2003 Aug 18) 9 (16) 3732-9.
Journal code: 9513783. ISSN: 0947-6539.
PUB. COUNTRY: Germany: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200402
ENTRY DATE: Entered STN: 20030814
Last Updated on STN: 20040203

Entered Medline: 20040202

ABSTRACT:
The nano dimensions, graphitic surface chemistry and electronic properties of single walled carbon nanotubes make such a material an ideal candidate for chemical or biochemical sensing. Carbon nanotubes can be nondestructively oxidized along their sidewalls or ends and subsequently covalently functionalized with colloidal particles or polyamine dendrimers via carboxylate chemistry. Proteins adsorb individually, strongly and noncovalently along nanotube lengths. These nanotube-protein conjugates are readily characterized at the molecular level by atomic force microscopy. Several metalloproteins and enzymes have been bound on both the sidewalls and termini of single walled carbon nanotubes. Though coupling can be controlled, to a degree, through variation of tube oxidative pre-activation chemistry, careful control experiments and observations made by atomic force microscopy suggest that immobilization is strong, physical and does not require covalent bonding. Importantly, in terms of possible device applications, protein attachment appears to occur with retention of native biological structure. Nanotube electrodes exhibit useful voltammetric properties with direct electrical communication possible between a redox-active biomolecule and the delocalized pi system of its carbon nanotube support.

CONTROLLED TERM: Check Tags: Comparative Study
***Biosensing Techniques: IS, instrumentation**
Cytochromes c: CH, chemistry
Electrochemistry: MT, methods
Electrons
Glucose Oxidase: CH, chemistry
Microscopy, Atomic Force: MT, methods
Microscopy, Electron, Scanning Transmission: MT, methods
Models, Molecular
Molecular Conformation
***Nanotubes, Carbon: CH, chemistry**
Oxidation-Reduction
Research Support, Non-U.S. Gov't
Spectrum Analysis
Surface Properties

CAS REGISTRY NO.: 9007-43-6 (Cytochromes c)

CHEMICAL NAME: 0 (Nanotubes, Carbon); EC 1.1.3.4 (**Glucose** Oxidase)

L126 ANSWER 24 OF 31 MEDLINE on STN

ACCESSION NUMBER: 2003186240 MEDLINE

DOCUMENT NUMBER: PubMed ID: 12705383

TITLE: Study of carbon nanotubes-HRP modified electrode and its application for novel on-line biosensors.

AUTHOR: Yamamoto Katsunobu; Shi Guoyue; Zhou Tianshu; Xu Fan; Xu Jiming; Kato Takeshi; Jin Ji-Ye; Jin Litong

CORPORATE SOURCE: Laboratory of Research and Development, BAS Inc., 1-36-6, Oshiage, Sumida-Ku, Tokyo, Japan.

SOURCE: Analyst, (2003 Mar) 128 (3) 249-54.
Journal code: 0372652. ISSN: 0003-2654.

PUB. COUNTRY: England: United Kingdom

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200307

ENTRY DATE: Entered STN: 20030423
Last Updated on STN: 20030704
Entered Medline: 20030703

ABSTRACT:
In this paper, multi-walled carbon nanotubes (MWCNTs) were successfully

immobilized on the surface of a glassy carbon electrode by mixing with horse-radish peroxidase (HRP). The electrochemical behavior of H2O2 was also studied with the MWCNTs-HRP modified electrode as a working electrode. The MWCNTs-HRP modified electrode showed excellent response of reduction current for the determination of H2O2 at the potential of -300 mV (vs. Ag/AgCl). We assembled the MWCNTs-HRP modified electrode in a thin-layer flow cell and the H2O2 solution was continuously introduced into the cell with a syringe pump. We optimized the sensitivity of the H2O2 sensor by adjusting the working potential and the pH of the buffer solution. The peak current increased linearly with the concentration of H2O2 in the range 3.0 x 10(-7) to approximately 2.0 x 10(-4) mol L(-1). The detection limit is 1.0 x 10(-7) mol L(-1) (S/N = 3). The interferences from ascorbic acid, uric acid and other electroactive substances can be greatly excluded since the sensor can be operated at -300 mV. Stability and reproducibility of the MWCNTs-HRP chemically modified electrode were also studied in this paper. Fabricated with ***glucose*** and lactate oxidase, the MWCNTs-HRP electrode was also applied to prepare the on-line **glucose** and lactate biosensors because of the high sensitivity for the determination of H2O2.

CONTROLLED TERM: ***Biosensing Techniques**
Electrochemistry: MT, methods
Flow Injection Analysis
Glucose: AN, analysis
Horseradish Peroxidase
Lactic Acid: AN, analysis
Nanotubes, Carbon
Research Support, Non-U.S. Gov't

CAS REGISTRY NO.: 50-21-5 (Lactic Acid); **50-99-7 (Glucose)**

CHEMICAL NAME: 0 (Nanotubes, Carbon); EC 1.11.1.- (Horseradish Peroxidase)

L126 ANSWER 25 OF 31 MEDLINE on STN

ACCESSION NUMBER: 2002722892 MEDLINE

DOCUMENT NUMBER: PubMed ID: 12485767

TITLE: Novel carbon materials in biosensor systems.

AUTHOR: Sotiropoulou S; Gavalas V; Vamvakaki V; Chaniotakis N A

CORPORATE SOURCE: Department of Chemistry, Laboratory of Analytical Chemistry, University of Crete, 71 409 Iraklion, Crete, Greece.

SOURCE: Biosensors & bioelectronics, (2003 Mar) 18 (2-3) 211-5. Journal code: 9001289. ISSN: 0956-5663.

PUB. COUNTRY: England: United Kingdom

DOCUMENT TYPE: (EVALUATION STUDIES)
Journal; Article; (JOURNAL ARTICLE)
(VALIDATION STUDIES)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200308

ENTRY DATE: Entered STN: 20021218
Last Updated on STN: 20030823
Entered Medline: 20030822

ABSTRACT:
In this work, novel carbon materials are evaluated as transducers, stabilizers and mediators for the construction of amperometric biosensors. It is shown that materials such as fullerenes and carbon nanotubes are promising materials as electrochemical mediators and enzyme stabilizers. Additionally porous carbon and porous glassy carbon are excellent transducers for amperometric measurements, while they provide cavities adequate for enzyme immobilization. At the same time, the sensitivity to peroxide is shown to depend on the activation procedures. Treatment that introduces oxygen groups increases the sensitivity of the carbon-based sensor to hydrogen peroxide considerably. These materials are used for the construction, mediation and stabilization of

glucose biosensor.
CONTROLLED TERM: Check Tags: Comparative Study
Adsorption
***Biosensing Techniques: IS, instrumentation**
Biosensing Techniques: MT, methods
*Carbon: CH, chemistry
Electrochemistry: IS, instrumentation
Electrochemistry: MT, methods
Enzyme Stability
*Enzymes, Immobilized: CH, chemistry
Fullerenes: CH, chemistry
Glucose: AN, analysis
Glucose Oxidase
*Hydrogen Peroxide: AN, analysis
*Materials Testing: MT, methods
Nanotubes, Carbon: CH, chemistry
Reproducibility of Results
Research Support, Non-U.S. Gov't
Sensitivity and Specificity
CAS REGISTRY NO.: **50-99-7 (Glucose)**; 7440-44-0 (Carbon); 7722-84-1 (Hydrogen Peroxide)
CHEMICAL NAME: 0 (Enzymes, Immobilized); 0 (Fullerenes); 0 (Nanotubes, Carbon); EC 1.1.3.4 (**Glucose** Oxidase)

L126 ANSWER 26 OF 31 MEDLINE on STN
ACCESSION NUMBER: 2002635190 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12392405
TITLE: Bioelectrochemical single-walled carbon nanotubes.
AUTHOR: Azamian Bobak R; Davis Jason J; Coleman Karl S; Bagshaw Claire B; Green Malcolm L H
CORPORATE SOURCE: Inorganic Chemistry Laboratory, University of Oxford, South Parks Road, UK.
SOURCE: Journal of the American Chemical Society, (2002 Oct 30) 124 (43) 12664-5.
Journal code: 7503056. ISSN: 0002-7863.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200212
ENTRY DATE: Entered STN: 20021024
Last Updated on STN: 20030102
Entered Medline: 20021231
CONTROLLED TERM: *Cytochrome c Group: CH, chemistry
Electrochemistry
*Enzymes, Immobilized: CH, chemistry
*Ferritin: CH, chemistry
***Glucose Oxidase: CH, chemistry**
***Nanotubes, Carbon: CH, chemistry**
Research Support, Non-U.S. Gov't
CAS REGISTRY NO.: 9007-73-2 (Ferritin)
CHEMICAL NAME: 0 (Cytochrome c Group); 0 (Enzymes, Immobilized); 0 (Nanotubes, Carbon); EC 1.1.3.4 (Glucose Oxidase)

L126 ANSWER 27 OF 31 EMBASE
ACCESSION NUMBER: 2004291306 EMBASE
TITLE: Amperometric **glucose** biosensor based on adsorption of **glucose** oxidase at platinum nanoparticle-modified carbon nanotube electrode.

AUTHOR: Tang H.; Chen J.; Yao S.; Nie L.; Deng G.; Kuang Y.
CORPORATE SOURCE: J. Chen, State Key Lab. Chemo/Biosensing C., Hunan University, Changsha 410082, China. chenjinhua@hnu.cn
SOURCE: Analytical Biochemistry, (1 Aug 2004) Vol. 331, No. 1, pp. 89-97.
Refs: 37
ISSN: 0003-2697 CODEN: ANBCA2
PUBLISHER IDENT.: S 0003-2697(04)00411-7
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 20040722
Last Updated on STN: 20040722
ABSTRACT: A new amperometric biosensor, based on adsorption of **glucose** oxidase (GOD) at the platinum nanoparticle-modified carbon nanotube (CNT) electrode, is presented in this article. CNTs were grown directly on the graphite substrate. The resulting GOD/Pt/CNT electrode was covered by a thin layer of Nafion to avoid the loss of GOD in determination and to improve the anti-interferent ability. The morphologies and electrochemical performance of the CNT, Pt/CNT, and Nafion/GOD/Pt/CNT electrodes have been investigated by ***scanning*** electron microscopy, cyclic voltammetry, and amperometric methods. The excellent electrocatalytic activity and special three-dimensional structure of the enzyme electrode result in good characteristics such as a large determination range (0.1-13.5mM), a short response time (within 5s), a large current density (1.176mAcm(-2)), and high sensitivity (91mAM(-1)cm (-2)) and stability (73.5% remains after 22 days). In addition, effects of pH value, applied potential, electrode construction, and electroactive interferents on the amperometric response of the sensor were investigated and discussed. The reproducibility and applicability to whole blood analysis of the enzyme electrode were also evaluated.

CONTROLLED TERM: Medical Descriptors:
***amperometric biosensor**
*adsorption
nanoparticle
nanotube
electrode
electrochemical analysis
scanning electron microscopy
cyclic potentiometry
amperometry
response time
reproducibility
blood analysis
article
priority journal
Drug Descriptors:
***glucose oxidase**
*platinum
*carbon
graphite
CAS REGISTRY NO.: (**glucose** oxidase) 9001-37-0; (platinum) 7440-06-4; (carbon) 7440-44-0; (graphite) 7782-42-5

L126 ANSWER 28 OF 31 PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED.
on STN DUPLICATE 8
ACCESSION NUMBER: 2004-0036986 PASCAL

TITLE (IN ENGLISH): Carbon **nanotubes** paste **electrode**
AUTHOR: RUBIANES Maria D.; RIVAS Gustavo A.
CORPORATE SOURCE: INFIQC, Departamento de Fisico Quimica, Facultad de Ciencias Quimicas, Universidad Nacional de Cordoba, Ciudad Universitaria, 5000 Cordoba, Argentina
SOURCE: Electrochemistry communications, (2003), 5(8), 689-694, 16 refs.
ISSN: 1388-2481
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Netherlands
LANGUAGE: English
AVAILABILITY: INIST-26863, 354000119487500130
ABSTRACT: The performance of carbon **nanotubes** paste **electrodes** (CNTPE) prepared by dispersion of multi-wall carbon **nanotubes** (MWNT) within mineral oil is described. The resulting **electrode** shows an excellent electrocatalytic activity toward ascorbic acid, uric acid, dopamine, 3,4-dihydroxyphenylacetic acid (dopac) and **hydrogen** peroxide. These properties permit an important decrease in the overvoltage for the oxidation of ascorbic acid (230 mV), uric acid (160 mV) and **hydrogen** peroxide (300 mV) as well as a dramatic improvement in the reversibility of the redox behavior of dopamine and dopac, in comparison with the classical carbon (graphite) paste **electrodes** (CPE). The substantial decrease in the overvoltage of the **hydrogen** peroxide reduction (400 mV) associated with a successful incorporation of **glucose oxidase** (GOx) into the composite material, allow the development of a highly selective and **sensitive glucose** biosensor without using any metal, redox mediator or anti-interference membrane. No interference was observed at -0.100 V even for large excess of ascorbic acid, uric acid and acetaminophen. A linear response up to 30 mM (5.40 g 1.sup.-.sup.1) glucose with a detection limit of 0.6 mM (0.11 g l.sup.-.sup.1) were obtained with the CNTPE modified with 10% w/w GOx. Such an excellent performance of CNTPE toward **hydrogen** peroxide, represents a very good alternative for developing other enzymatic biosensors.
CLASSIFICATION CODE: 001C01H02A; Chemistry; General chemistry, Physical chemistry; Electrochemistry
002A31C09B; Life sciences; Biological sciences; Biotechnology
215; Biotechnology
CONTROLLED TERM: Biosensor; Ion selective **electrode**; Enzyme **electrode**; **Glucose oxidase** ; Paste **electrode**; Carbon **nanotubes** ; Modified material; Glucose; Chronopotentiometry
BROADER TERM: Oxidoreductases; Enzyme

L126 ANSWER 29 OF 31 BIOTECHDS COPYRIGHT 2005 THE THOMSON CORP. on STN
ACCESSION NUMBER: 2005-18335 BIOTECHDS
TITLE: **Glucose sensor** comprises apparatus

comprising metallic single-walled carbon **nanotubes** arranged and configured to define interstitial space(s) for sorption of **hydrogen gas**;
a biosensor for the detection and analysis of **glucose** using a **glucose-oxidase** enzyme **electrode**

AUTHOR: LEE J; CHUNG J; LEE K
PATENT ASSIGNEE: LEE J; CHUNG J; LEE K
PATENT INFO: US 2005124020 9 Jun 2005
APPLICATION INFO: US 2003-729854 5 Dec 2003
PRIORITY INFO: US 2003-729854 5 Dec 2003; US 2003-729854 5 Dec 2003
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2005-416999 [42]
ABSTRACT: DERWENT ABSTRACT:
NOVELTY - A **glucose sensor** comprising apparatus having metallic single-walled carbon **nanotubes** arranged and configured to define interstitial space(s) for sorption of **hydrogen gas**, the **nanotube**(s) being positioned across and in electrical contact with an **electrode** pair; and **glucose oxidase** component contacting the **nanotubes**, is new.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for using a metallic single-walled carbon **nanotubes** to determine **glucose** concentration, comprising providing metallic single-walled carbon **nanotubes** defining interstitial space(s), the **nanotube**(s) being positioned across an **electrode** pair, having electrical resistance, and a **glucose oxidase** component; introducing **glucose** to the **glucose oxidase** component; applying current across the **electrode** pair at least partially sufficient to produce **hydrogen gas**; and determining a change in the resistance upon the **glucose** introduction.
USE - For **sensing glucose** (claimed).
ADVANTAGE - The single-walled carbon **nanotubes** are configured such that the interstitial spaces or sites can be used to sense or detect **hydrogen gas** in conjunction with the presence of **glucose**. The **sensor** measures or monitors **glucose** levels quickly at clinically-significant levels. (13 pages)
CLASSIFICATION: BIOINFORMATICS and ANALYSIS, Biosensors; BIOMANUFACTURING and BIOCATALYSIS, Biocatalyst Application
CONTROLLED TERMS: BIOSENSOR, **GLUCOSE-OXIDASE**, MICROBIAL **ELECTRODE**, ENZYME **ELECTRODE**, CARBON **NANOTUBE**, APPL., **GLUCOSE** ANALYSIS ENZYME EC-1.1.3.4 SUGAR (24, 30)

L126 ANSWER 30 OF 31 SCISEARCH COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2005:470378 SCISEARCH
THE GENUINE ARTICLE: 914HP
TITLE: Cast thin film biosensor design based on a nafion backbone, a multiwalled carbon **nanotube** conduit, and a **glucose oxidase** function
AUTHOR: Tsai Y C (Reprint); Li S C; Chen J M
CORPORATE SOURCE: Natl Chung Hsing Univ, Dept Chem Engn, Taichung 402, Taiwan (Reprint)

yctsai@dragon.nchu.edu.tw
COUNTRY OF AUTHOR: Taiwan
SOURCE: LANGMUIR, (12 APR 2005) Vol. 21, No. 8, pp. 3653-3658.
ISSN: 0743-7463.
PUBLISHER: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 37
ENTRY DATE: Entered STN: 12 May 2005
Last Updated on STN: 12 May 2005

ABSTRACT:
Novel electroanalytical sensing nanobiocomposite materials are reported. These materials are prepared by mixing multiwalled carbon **nanotubes** (MWNTs), a Nafion cation exchanger, and **glucose oxidase** (GOD) in appropriate amounts. The MWNTs are cylindrical with a diameter in the range 40-60 nm and with a length of up to several micrometers, and they provide electrical conductivity. Nafion acts as a polymer backbone to give stable and homogeneous cast thin films. Both MWNTs and Nafion provide negative functionalities to bind to positively charged redox enzymes such as ***glucose*** **oxidase.** The resulting biosensing composite material is inexpensive, reliable, and easy to use. The homogeneity of the MWNT-Nafion-GOD nanobiocomposite films was characterized by atomic force microscopy (AFM). Amperometric transducers fabricated with these materials were characterized electrochemically using cyclic voltammetry and amperometry in the presence of **hydrogen** peroxide and in the presence of glucose. Their linear response to **hydrogen** peroxide was demonstrated. The ***glucose*** biosensor **sensitivity** was strongly influenced by the ***glucose*** **oxidase** concentration within the nanobiocomposite film. The optimized glucose biosensor (2.5 mg/mL GOD) displayed a sensitivity of 330 nA/mM, a linear range of up to 2 mM, a detection limit of 4 mu M, and a response time of < 3 s.
CATEGORY: CHEMISTRY, PHYSICAL
SUPPL. TERM PLUS: **HYDROGEN**-PEROXIDE; **ELECTRODE**; IMMOBILIZATION; COMPOSITE; OXIDATION; SENSOR; PH

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AJAYAN P M	1999	99	1787	CHEM REV
ALEGRET S	1996	11	35	BIOSENS BIOELECTRON
BADEA M	2003	18	689	BIOSENS BIOELECTRON
BANKS C E	2004	16	1804	CHEM COMMUN
BAUGHMAN R H	1999	284	1340	SCIENCE
BESTEMAN K	2003	3	727	NANO LETT
DEBETONO S F	1999	20	621	J PHARMACEUT BIOMED
DEGRAND C	1996	14	1343	J PHARMACEUT BIOMED
DEHEER W A	1995	270	1179	SCIENCE
EGGINS B R	2002		100	CHEM SENSORS BIOSENS
ELMGREN M	1993	362	227	J ELECTROANAL CHEM
FABIANO S	2002	21	61	MAT SCI ENG C-BIO S
FOULDS N C	1988	60	2473	ANAL CHEM
HU S S	2002	464	209	ANAL CHIM ACTA
KAZANDJIAN R Z	1985	107	5448	J AM CHEM SOC
KHAN G F	1992	64	1254	ANAL CHEM
KIM M A	2003	479	143	ANAL CHIM ACTA
LI Z	2003	558	155	J ELECTROANAL CHEM
LIN Y H	2004	4	191	NANO LETT
MOORE R R	2004	76	2677	ANAL CHEM
PIRO B	2001	512	101	J ELECTROANAL CHEM

RAMANATHAN K	1995	3	159	MAT SCI ENG C-BIO S
RAZOLA S S	2002	17	921	BIOSENS BIOELECTRON
SHIN M C	1996	11	161	BIOSENS BIOELECTRON
SLESZYNSKI N	1984	56	130	ANAL CHEM
TANG H	2004	331	89	ANAL BIOCHEM
TATSUMA T	1992	64	1183	ANAL CHEM
TSAI Y C	2004	6	917	ELECTROCHEM COMMUN
VIDAL J C	1999	57	219	SENSOR ACTUAT B-CHEM
VREEKE M	1992	64	3084	ANAL CHEM
WANG J	2001	13	1153	ELECTROANAL
WILDGOOSE G G	2004	5	669	CHEMPHYSCHEM
WONG S S	1998	394	52	NATURE
WU F H	2002	4	690	ELECTROCHEM COMMUN
WU G	2001	10	160	CHIN J REACT POLYM
ZEN J M	1999	396	39	ANAL CHIM ACTA
ZHAO Q	2002	14	1609	ELECTROANAL

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ABSTRACT:
A review with 95 references is given on the applications of carbon ***nanotubes*** in analytical chemistry. The use of carbon ***nanotubes*** as tip of scanning microscopy, materials of **gas** sensors, modified **electrode**, **gas** chromatographic packing materials and detector of liquid chromatography is mainly discussed.
CATEGORY: CHEMISTRY, ANALYTICAL
SUPPLEMENTARY TERM: carbon **nanotubes**; tip of scanning microscopy; **gas** sensors; chemically modified **electrode** ; review
SUPPL. TERM PLUS: SCANNING PROBE MICROSCOPY; DIRECT ELECTRON-TRANSFER; DIRECT ELECTROCHEMICAL OXIDATION; CHEMICAL-VAPOR-DEPOSITION; ASCORBIC-ACID; ELECTROCATALYTIC OXIDATION; CYTOCHROME-C; **GLUCOSE-OXIDASE**; DIRECT GROWTH; **GAS** SENSORS
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ANON	1998	67	1	APPL PHYS A
AGO H	1999	103	8116	J PHYS CHEM B

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AZAMIAN B R	2002	124	12664	J AM CHEM SOC
BAO J C	2002	14	1483	ADV MATER
BARISCI J N	2000	488	92	J ELECTROANAL CHEM
BARISCI J N	2000	147	4580	J ELECTROCHEM SOC
BRITTO P J	1999	11	154	ADV MATER
BRITTO P J	1996	41	121	BIOELECTROCH BIOENER
CAI C X	2004	325	285	ANAL BIOCHEM
CAMPBELL J K	1999	121	3779	J AM CHEM SOC
CAPONE S	1999	15	1748	LANGMUIR
CHE G L	1998	393	346	NATURE
CHEN J	2003	14	1171	CHINESE CHEM LETT
CHEN J				IN PRESS ANAL CHIM A
CHENG H M	2002			CARBON NANOTUBES SYN
CHEN J	2004	22	167	CHINESE J CHEM
CHENG F L	2003	21	436	CHINESE J CHEM
CHEN J	2003	21	665	CHINESE J CHEM
CHEN J				IN PRESS CHINESE CHE
CHEUNG C L	2000	76	3136	APPL PHYS LETT
CHEUNG C L	2000	97	3809	P NATL ACAD SCI USA
COLBERT D T	1994	266	1218	SCIENCE
COLLINS P G	2000	287	1801	SCIENCE
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DAI H J	1998	73	1508	APPL PHYS LETT
DAI H J	2002	500	218	SURF SCI
DAVIS J J	1997	440	279	J ELECTROANAL CHEM
DELZEIT L	2002	106	5629	J PHYS CHEM B
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GUISEPPIELIE A	2002	13	559	NANOTECHNOLOGY
GUO L Q	2002	4	36	COMMUN HIGH TECH
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HAFNER J H	1999	398	761	NATURE
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IIJMA S	1991	354	56	NATURE
JHI S H	2000	85	1710	PHYS REV LETT
KIANG C H	1995	33	903	CARBON
KONG J	2000	287	622	SCIENCE
KRISHNAN A	1998	58	14013	PHYS REV B
LAGO R M	1995		1355	J CHEM SOC CHEM COMM
LI J	2002	106	9299	J PHYS CHEM B
LI Q L	2002	60	1876	ACTA CHIM SINICA
LIN L	2003	22	6	J INSTRUMENTAL ANAL
LIN L	2003	31	261	CHINESE J ANAL CHEM
LIU C L	2002	30	1	INT J APPROX REASON
LIU C Y	1999	2	577	ELECTROCHEM SOLID ST
LIU P F	2002	84	194	SENSOR ACTUAT B-CHEM
LIU Z	2000	16	2569	LANGMUIR
LUO H X	2001	73	915	ANAL CHEM
LUO H X	2000	21	1372	CHEM J CHINESE U
MANDELIS A	1993			PHYS CHEM TECHNOLOGY
MCCONNELL H M	1992	257	1906	SCIENCE
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MIASIK J J	1986	82	1117	J CHEM SOC FARAD T 1
MUSAMEH M	2002	4	743	ELECTROCHEM COMMUN
NAN X L	2001	17	393	ACTA PHYS-CHIM SIN

NISHIJIMA H	1999	74	4061	APPL PHYS LETT
ODOM T W	1998	391	62	NATURE
ONG K G	2002	2	82	IEEE SENS J
RAO C N R	1996		1525	J CHEM SOC CHEM COMM
SAITO R	1998			PHYS PROPERTIES CARB
SAITO R	1992	60	2204	APPL PHYS LETT
SANO M	2001	293	1299	SCIENCE
SUMANASEKERA G U	1999	103	4292	J PHYS CHEM B
TAKAO Y	1994	141	1028	J ELECTROCHEM SOC
THESS A	1996	273	483	SCIENCE
WANG Z H	2002	30	1053	CHINESE J ANAL CHEM
WANG G	2002	4	506	ELECTROCHEM COMMUN
WANG Z H	2003	31	1004	CHINESE J ANAL CHEM
WANG J X	2002	14	225	ELECTROANAL
WANG Z H	2002	127	1353	ANALYST
WANG J X	2002	74	1993	ANAL CHEM
WANG Z H	2002	127	653	ANALYST
WANG J	2003	125	2408	J AM CHEM SOC
WANG Z H	2003	24	811	CHEM J CHINESE U
WANG Z H	2003	540	129	J ELECTROANAL CHEM
WANG Z H	2003	24	236	CHEM J CHINESE U
WILDOER J W G	1998	391	59	NATURE
WONG S S	1998	120	603	J AM CHEM SOC
WONG S S	1998	73	3465	APPL PHYS LETT
WONG S S	1998	394	52	NATURE
WU F H	2002	4	690	ELECTROCHEM COMMUN
XU J Z	2003	21	1088	CHINESE J CHEM
YANG X	2000	7	527	EARTH SCI FRONTIER
ZHAO T Q	2002	29	176	PROG BIOCHEM BIOPHYS
ZHU H W	2003			CARBON NANOTUBES
ZHU S W	2000	31	119	J FUNCTIONAL MAT
ZHU H W	2002	296	884	SCIENCE

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